S+T+ARTS PRIZE

CLOSING THE LOOP: S+T+ARTS PRIZE EXCELLENCE PATHWAYS

waag futurelab

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Authors: Zeynep Birsel, Margherita Soldati, Miha Turšič
Affiliation: Waag Futurelab, Amsterdam
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EXECUTIVE SUMMARY FOR POLICYMAKERS, INDUSTRY, CULTURE & EDUCATION

Closing the Loop examines eight years of the S+T+ARTS Prize and identifies the pathways and conditions through which art-driven and transdisciplinary projects shape the excellence of European research and innovation (R&I). The study demonstrates that **S+T+ARTS Prize award-winning projects substantially contribute to the development of EU and national R&I frameworks and offer practical models for implementing responsible research and innovation, transdisciplinarity, and 5-helix collaboration in ways that are culturally grounded, socially responsive, and ecologically aware.**

KEY INSIGHTS

S+T+ARTS Prize projects show that excellence in art–science–technology research is not defined by novelty alone, but by how cultural, ethical, ecological and social concerns are embedded into the creation of new knowledge and new technological possibilities. **This moves the European research agenda from "innovation for growth" to "innovation for jointly created futures."**

SEVEN PILLARS OF S+T+ARTS PRIZE EXCELLENCE

1. **Novelty:** New visions, new research paths, and alternative uses of technology.
2. **Concern-driven:** Research begins from lived urgency: climate, justice, care, or equality.
3. **Boundary work:** Active cross-fertilisation between artistic, scientific, and technological domains.
4. **Agency-building:** Enabling citizens, communities, and more-than-human actors to act.
5. **Criticality:** Making hidden systems, assumptions, and power visible and debatable.
6. **Change orientation:** Projects shift perspectives, policies, infrastructures, or cultural narratives.
7. **Value-embedded research:** Research acknowledges that knowledge and technology are never neutral.

CONDITIONS THAT ENABLE EXCELLENCE

The study identifies the enabling conditions that allow excellence to emerge:

1. Long-term development time requires **a shift from short project cycles to multi-stage support pathways.**
2. Access to research infrastructures and labs secures **transdisciplinary spaces for experimentation.**
3. Mixed funding models enable **hybrid cultural with research and innovation financing mechanisms.**
4. Community-of-practice ecosystems and partnership continuity **support ecosystem-building.**
5. Translators and mediators across domains also require **funding for mentorship and translation roles.**

FOR EU & NATIONAL POLICYMAKERS

Art is not a support discipline but a driver of innovation ecosystems: S+T+ARTS Prize projects tackle challenges across all Horizon Europe clusters and show how research and innovation can align with societal needs, while strengthening the legitimacy and transformative power of innovation programmes.

+ **Societally aligned R&I and public trust:** aligns agendas with public needs, ethics, and real-world urgency, while building legitimacy through cultural participation that keeps innovation open, relatable, and socially grounded.
+ **Inclusive and transformative innovation models:** Introduce joyful, critical, and experimental approaches that broaden policy tools for societal transitions.
+ **New methods for complex, post-disciplinary challenges:** Offers practical methodologies for issues that surpass single-sector or single-discipline problem frames.

FOR INDUSTRY

Art-driven innovation within the S+T+ARTS ecosystem offers industry more than "creative input": it provides concrete methods, mindsets, and collaboration formats that help companies innovate responsibly, identify blind spots earlier, and develop new products and services with stronger societal relevance.

+ **New, responsible innovation models:** Expands industrial innovation with community-driven approaches and practical pathways to RRI principles and societally grounded technology development.
+ **Fresh perspectives on industrial challenges:** Artists surface blind spots, question assumptions, and open up alternative futures beyond conventional R&D frames.
+ **Space for long-term experimentation:** Enables exploration beyond short business cycles, lowering innovation risk and supporting deeper learning over time.
+ **Translating artistic research into scalable practice:** Converts artistic methods into actionable frameworks for product development and creative enterprise growth.

FOR CULTURAL ORGANISATIONS

Cultural organisations are key enablers of S+T+ARTS excellence: they host the spaces, infrastructures, and public interfaces that allow art-driven innovation to develop over time, connect across sectors, and remain grounded in communities and cultural meaning.

+ **Strengthen the S+T+ARTS community and shared capacity:** Create spaces beyond project cycles for sustained peer support, exchange, cross-project learning, and capacity-building.
+ **Improve translation across sectors:** Make artistic insights legible to policy, industry, and academia, supporting mutual understanding and collaboration.
+ **Anchor long-term development:** Provide environments where multi-year efforts can grow, deepen, and connect across communities and beyond established narratives.

FOR EDUCATIONAL AND RESEARCH SECTOR

Art-driven innovation through the S+T+ARTS ecosystem helps universities and research centres strengthen transdisciplinary collaboration, enrich teaching with practice-led methods, and develop assessment models that match the realities of complex, value-embedded research.

+ **A transdisciplinary ecosystem beyond academic silos:** Enables collaboration across distant fields, expanding education beyond discipline-bound or purely solution-driven approaches.
+ **Curricula and learning integrating artistic ways of knowing:** Brings experiential, hands-on, critical, and creative practices into teaching, extending learning into cultural spaces and practice contexts through academic and non-academic collaborations.
+ **New impact and assessment models for complex research:** Introduces evaluation approaches suited to concern-driven, value-based, and ethically informed inquiry.
+ **Enabling infrastructure for experimentation:** Provides facilitators and translators, alongside makerspaces, labs, and cultural institutions, that support practice-led research and complement formal education ecosystems.

INTRODUCTION

Closing the Loop was launched with the ambition of **enhancing the internal capacity of the S+T+ARTS initiative by drawing lessons from the S+T+ARTS Prize excellence scheme and supporting the sustainable development of future art-driven innovation actions.**

S+T+ARTS (Science, Technology and the Arts) is a European Commission programme designed to catalyse innovation at the intersection of science, technology, and the arts. It aims to rewire Europe's innovation ecosystem so that innovation is understood not purely as technical progress with economic value, but as a collaborative, socially aware, ethical, and collectively creative process—helping Europe rethink technology through art and art through technology.

Launched in 2016 under the Commission's Horizon 2020 research and innovation framework, the S+T+ARTS initiative emerged from the recognition that artistic and creative practices can act as catalysts for social and technological transformation. Since then, S+T+ARTS has evolved into a multifaceted programme. Its key pillars include the annual S+T+ARTS Prize, which awards groundbreaking collaborations between art and technology—and which is the focus of this report.

Grounded in concrete insights from S+T+ARTS Prize-winning projects, the study aims **to contribute to the evidence base of the S+T+ARTS initiative, through a nuanced reading of how art–science–technology collaborations are changing the innovation culture and notions of research excellence.**

The general goal of this study is **to explore excellence pathways for art-driven collaborative innovation and creative transdisciplinary research in support of the sustainable development of future S+T+ARTS innovation actions.** To achieve this, the study focuses on strengthening the connection between the S+T+ARTS Prize excellence scheme, innovation actions, and the broader ecosystem, emphasizing a community-based approach that brings together diverse stakeholders around key challenges. It also aims **to enhance knowledge transfer from the S+T+ARTS Prize to innovation actions**, specifically by exploring unconventional collaborative methodologies and creative research pathways exemplified in prize projects, in order to bridge knowledge and cultural gaps in residency programmes. Furthermore, the study seeks **to foster broader acceptance and implementation of art-based research and responsible innovation practices across research, technology, industry, and policy sectors, thereby demonstrating the potential systemic impact of artistic excellence on the EU's research and innovation agenda.** This includes a collaborative exploration of excellence pathways through artistic practice beyond predefined outcomes. Lastly, the study emphasizes the need for an open and inclusive platform to address emerging critical topics of EU research as identified through different Horizon Europe clusters, while proposing a flexible framework to support the long-term development and dissemination of core S+T+ARTS values.

This study proposes several distinct angles, situating S+T+ARTS in the wider scheme of European research and innovation policy and advocating for the inherent value of S+T+ARTS in strengthening European research. In this positioning, we reference the most recent policy frameworks guiding the European research landscape, namely Responsible Research and Innovation (RRI), transdisciplinary research and the 5-helix collaborative model for innovation. A lengthy discussion of these building blocks is beyond the scope of this report. However, we provide an overview of these frames of reference to support the argument that the S+T+ARTS programme is a uniquely positioned environment not only supporting and validating, but also moving beyond and strengthening the vision behind the European research agenda.

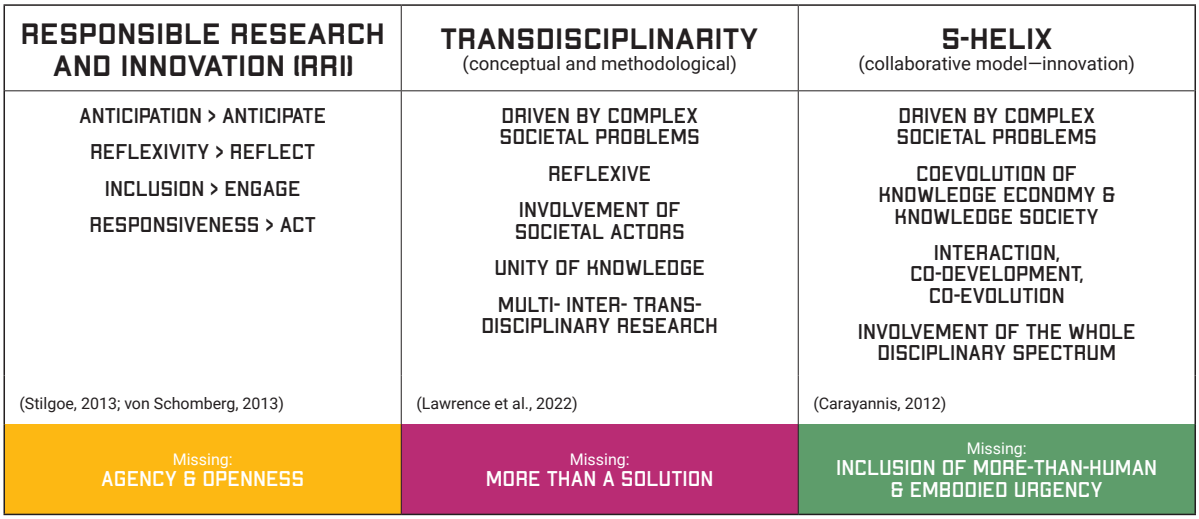

Figure 1: EU research priorities

European research policy builds on three fundamental frameworks: Responsible Research and Innovation (RRI), transdisciplinary research, and the five-helix collaborative model. Each proposes—and, to varying degrees, mandates—distinct elements, some of which overlap. However, in practice, these guiding frameworks still require knowledge of the "how", and they can remain elusive when it comes to operational adoption and development. Throughout this report, we demonstrate empirically how these principles are put into practice in S+T+ARTS Prize projects, helping to bridge this gap. Our analysis also shows how the S+T+ARTS model supports these principles while extending beyond them, helping to evolve and strengthen the backbone of European research and innovation culture.

For instance, European Commission policy refers to RRI as a collective, anticipatory, and reflexive approach to research and innovation, ensuring that science and technology develop ethically, sustainably, and in alignment with societal needs, values, and expectations (von Schomberg, 2013).

RRI is not simply about meeting regulatory or ethical standards, but about actively shaping innovation trajectories so that they are inclusive, socially desirable, and responsive to emerging challenges. However, we rarely encounter research or technology that is valued and culturally situated at the societal level, or that manifests qualities reflecting societal needs and values. Our exploration of excellence in the S+T+ARTS Prize highlights a strong commitment to RRI attributes and offers valuable insights into how ethical considerations and societal needs are prioritised. Moreover, the S+T+ARTS Prize projects make a compelling case not only for inclusion, involvement, and public engagement, but also for empowering individuals and fostering a sense of agency within society.

Similarly, transdisciplinarity is one of the cornerstones of European research policy, aiming to provide solutions to complex problems by involving multiple disciplines and enabling stakeholder participation (Bernstein, 2011; Pohl & Hadorn, 2008; Nowotny et al., 2001; Müller et al., 2015). However, the ambition to solve complex problems

remains an ideal much of the time. We often fail to grasp the scale, magnitude, and urgency of these problems—not only because such problems exceed our cognitive and intellectual capacity, but also because proposed paths to solutions can risk obscuring the problems and their root causes. We may simply tune out by failing to stay with the trouble (Haraway, 2016). Therefore, sensitising and making things visible forces us to think beyond solutions. In this sense, the S+T+ARTS Prize notion of excellence transcends a solution-oriented approach. These projects invite critical thinking, challenge underlying assumptions, and shift agency to society at large.

Finally, S+T+ARTS Prize projects strongly demonstrate how the five-helix innovation model can be put into practice. According to the five-helix model, innovation should not only be economically driven, but also socially responsible and environmentally sustainable. The model emphasises collaborative, transdisciplinary innovation ecosystems (Carayannis et al., 2012). However, good practice on how to balance economic impact with social and ecological impact remains unclear; urgency is often unfelt and disembodied. Furthermore, the inclusion of other-than-human perspectives within a five-helix approach lacks methodological know-how and practical grounding. This is precisely the gap that S+T+ARTS Prize projects help to bridge, by providing inspiring and visionary examples as well as implementation know-how embedded in arts-based research and creative practice. In doing so, S+T+ARTS Prize projects—and the S+T+ARTS model more broadly—offer a robust approach, framework, and guidance for transversal research and creative practice, enabling a diversification of research methods and modes of inclusion.

All of these key propositions are unpacked and narrated in the following chapters. The S+T+ARTS Prize as an excellence scheme, and S+T+ARTS initiative more generally, are a globally unique feature of the European innovation ecosystem. Its likeness is not to be found in other innovation economies as part of a regional, systematic, policy-driven approach. Several of the jury members from technologically pioneering countries such as Japan have explicitly praised the approach and argued that many institutions (should) have an interest in learning from and adopting the S+T+ARTS approach to research and innovation. This research, focusing on the distinct characteristics and conditions of excellence reveals much to learn from, and reasons to build on the legacy of S+T+ARTS.

CHAPTER I.
METHODOLOGY

In this chapter, we outline the methodology that guided our research process, including the key questions that framed our analysis, the steps we followed, and the approach we adopted. Chapters II and III build upon this structure, applying the methodology to present and discuss the key findings that emerged from our research.

This research attempted to answer the following key questions:

What constitutes excellence? What conditions are necessary for excellence to emerge and develop?

These guiding questions informed the design of our research process. We used qualitative and inductive research methods and designed a three-tiered study.

EXCELLENCE STUDY		
EU POLICY	**CONTENT ANALYSIS**	**EXPERTS**
3 HORIZON PROJECTS 3 HORIZON DELIVERABLES	116 DOCUMENTS OF JURY STATEMENTS BY 56 JURORS, 18 GRAND WINNERS, 90 HONORARY MENTIONS	18 INTERVIEWS 12 WORKSHOP PARTICIPANTS

Figure 2: Excellence study structure

Qualitative content analysis was conducted iteratively over several cycles. It drew on the Ars Electronica archives, including each year's jury statements for the Grand Prize Artistic Innovation and the Grand Prize Innovative Collaboration, as well as nominations and honorary mentions.

In this first phase, we analysed **116 documents (jury statements from 2016–2024)**, including project descriptions and related project materials from the S+T+ARTS Prize. These documents were coded for attributes defining excellence and enabling conditions. Throughout the research, we worked iteratively with over 500 codes and nearly 2,000 supporting quotations. We approached the analysis with an open framework, using qualitative coding to extract patterns and thematic groupings. We were particularly interested in identifying domain relevance

(i.e., whether these projects relate to specific fields or raise thematic concerns), forms of artistic practice, methodological approaches, and distinct or novel qualities. The objective was to understand how excellence manifests within S+T+ARTS projects and what typologies emerge across diverse formats. Through this coding, several thematic clusters began to take shape organically: types of change, forms of collaboration, domains of inquiry, relationships to technologies, artistic formats, and ways of knowing.

From the first phase of open-ended analysis, **six thematic areas** emerged: the types of change facilitated by the projects; forms and models of collaboration; domains of inquiry; the nature of their relationship with technology; the diversity of artistic formats employed; and the varied ways of knowing that underpin the work. These categories surfaced organically, offering a foundational structure for understanding different expressions and markers of excellence across the S+T+ARTS landscape. Each of these thematic strands contains a diverse constellation of practices and methodologies that, together, offer an initial nuanced portrait of excellence within the S+T+ARTS context.

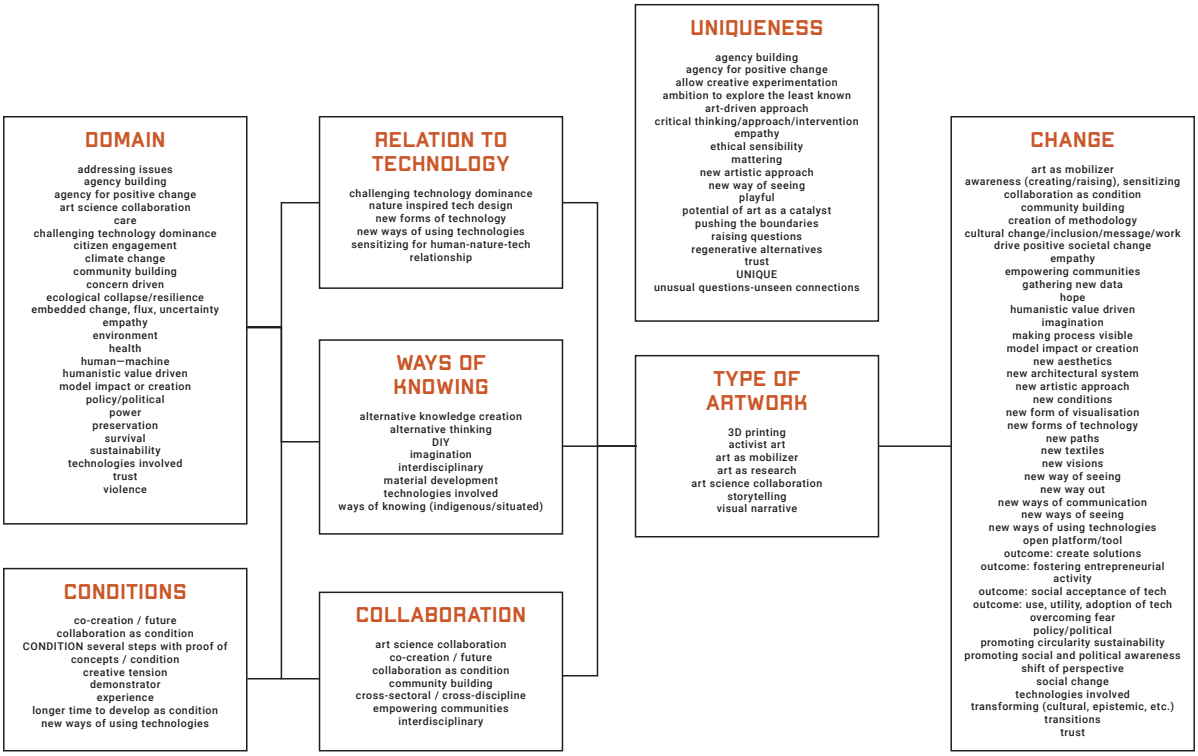

Figure 3: Overview of codes divided by thematic clusters

+ **Types of change** initiated by the projects, including new ways of applying or understanding technology, promoting social or political transformation, building empathy and trust, empowering communities, or generating alternative architectural, systemic, or aesthetic practices.
+ **Forms of collaboration**, including artist–scientist partnerships, community co-creation, institutional co-productions, and transdisciplinary engagements.
+ **Domains of inquiry**, ranging from ecological degradation and preservation to questions of care, health, violence, power structures, citizen participation, and climate justice.
+ **Relationships to technologies**, including critical perspectives on techno-dominance, alternative uses of emerging technologies, and explorations of human–nature–tech entanglements.
+ **Varied artistic formats**, ranging from installations and performances to prototypes, manifestos, and participatory systems.
+ **Different ways of knowing,** incorporating DIY methods, Indigenous knowledge systems, and inter- and cross-disciplinary research approaches.

To validate our findings and test their resonance with the broader community, we hosted **a workshop during Ars Electronica (September 2024)** with a group of experts, including awarded artists, jury members, and other contributors to S+T+ARTS. Together, we reviewed and discussed the thematic categories, identified relationships between clusters, and explored what might still be missing.

We used prompt cards to trigger discussion, drawing on the emergent concepts (identified through coding) under notions of excellence and pathways (enabling conditions). We facilitated in-depth group discussions, asking participants to select and sort the cards and to develop their own narrative of what constitutes excellence and which conditions are necessary to produce such work.

While many rich discussions took place around the questions and concept cards, participants also raised new questions and offered fresh angles and insights. One of the key insights that emerged from the workshop was the importance of *translation*, both as a concept and as a practical mechanism. Participants highlighted the need to explore how projects are *translated* across contexts, audiences, cultural settings, and disciplines. This prompted us to investigate the role of the *translator*: a figure capable of bridging the artist and the research environment or community. In this sense, we considered mentorship itself as a form of *translation*, and therefore a critical enabling condition for excellence. We also expanded the lens to view *translation* more broadly—as a process through which ideas, methods, and knowledge circulate and adapt between actors and domains. Based on this feedback, we recognised the need to move beyond document analysis alone and to enrich our understanding of excellence pathways through qualitative interviews with artists, jury members, and experts across the S+T+ARTS ecosystem.

In the second phase, we conducted **a series of semi-structured interviews** with S+T+ARTS Prize artists (winners and mentions), jury members, and other stakeholders from the S+T+ARTS ecosystem. We built on insights from the workshop and the first round of qualitative content coding and analysis. The interview questions were tailored slightly to each group.

For jury members and experts:

1. What qualities define excellence in S+T+ARTS projects? Are there common traits that persist across editions?
2. What are the necessary or enabling conditions for high-quality transdisciplinary work? What exists in the art–science research environment, and what is currently lacking?
3. What types of development pathways do excellent and high-quality transdisciplinary projects tend to follow?
4. What are the limitations of evaluating excellence under the S+T+ARTS Prize? How could evaluation processes be improved?
5. Why is a mechanism like the S+T+ARTS Prize valuable for the European innovation ecosystem? How could it better connect to ongoing practice and research?

For artists:

1. What do you identify as the markers of excellence in your own work in the context of S+T+ARTS?
2. What specific conditions helped you realise this project?
3. What does your project development pathway typically look like? What are its milestones?
4. How do you view the role of the S+T+ARTS Prize within the broader research and practice ecosystem?

Furthermore, we supported our empirical research with **a literature review of policy and funding schemes**, which informed the organisation of qualitative content derived from document and interview analysis. Drawing on these interviews, and supported by coded qualitative data from the prize materials, we identified four overarching categories that define the landscape of excellence within S+T+ARTS:

+ **Drivers**
+ **Formats and Activities**
+ **Results**
+ **Levels of Maturity**

CHAPTER II.

UNDERSTANDING EXCELLENCE IN S+T+ARTS PRIZE

Understanding excellence in the S+T+ARTS Prize was a journey through 116 jury statements from 2016 to 2024, a brainstorming and sense-making session with experts, past jury members, and artists, and finally a series of interviews with a selected but broader group of partners across the S+T+ARTS ecosystem. We explored and analysed these sources to identify key indicators of excellence, using software-assisted qualitative coding and narrative analysis methods.

While we describe this methodology in Chapter I, it is important to clarify how we approached the notion of excellence so that it is not interpreted as a purely normative quality. Several key elements therefore inform our understanding of potential indicators of excellence. First and foremost, we remain critical of the concept itself. Throughout the study, we repeatedly encountered—and validated—our long-standing observation that excellence is situated, contextual, and can take different forms. In our analysis, these dependencies were pragmatically grouped into levels of maturity, accessibility, drivers, and results. Finally, our perspective on excellence was explicitly pluralist. Three practice-based researchers analysed the material iteratively, and through ongoing discussion and iterations we arrived at a shared yet plural understanding of how excellence might be defined.

In this chapter, we take a deep dive into the following questions:

What distinguishing qualities of excellence do S+T+ARTS Prize projects exhibit? What defines excellence?

Several distinct thematic clusters emerged from the initial content analysis and the exploratory sense-making workshop at Ars Electronica: **agency**, **concern–value drive**, **novelty**, and **art as knowledge/research**. Novelty and art as knowledge and research are clusters that validate a common sentiment and shared experience among practitioners in the field. Agency and concern–value drive, by contrast, emerged as distinct perspectives that go beyond validating established experience. Although establishing an extensive, statistically validated cause-and-effect relationship between indicators and clusters is beyond the scope of this report, expert reflections and in-depth discussions helped us connect these macro-level themes pragmatically.

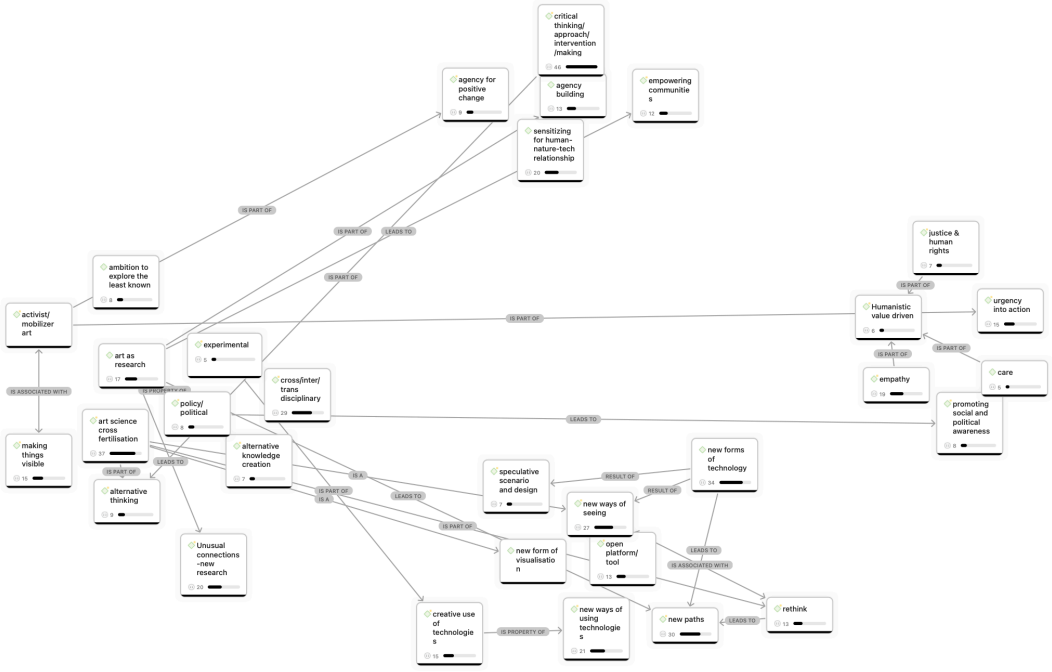

Figure 4: Thematic excellence clusters

ART AS (TRANSDISCIPLINARY) KNOWLEDGE AND RESEARCH

The main proposition of this cluster is the validation that we see art as a legitimate form of research and knowledge creation. This means that most of these projects were recognised for their capacity to deliver **creative inter/ cross/transdisciplinary research**. Transdisciplinarity is one of the building blocks of European research policy, **aiming to provide solutions to complex problems by involving multiple disciplines and stakeholder participation** (Bernstein, 2011; Pohl and Hadorn, 2008; Nowotny et al. 2001; Muller, et al. 2015). However, methods, approaches, and tools are not fully established or matured, in many ways critiqued, contested and inconclusive. In addition, art's position in inter- or trans- disciplinary research has mostly been marginalised, as it adds to the mounting complexity of its forms and methodologies. Therefore, transdisciplinary research has historically developed as a science-based domain, at best integrating social sciences, and ambitions to integrate further with arts and humanities have driven recent initiatives and scholarly works such as SHAPE-ID.

In the context of the S+T+ARTS Prize, a shift is taking place in how we create solutions and knowledge, prominently featuring and enabling art within inter- and transdisciplinary research. In this sense, transdisciplinarity can evolve as a form of creative research and knowledge production that is socially robust: accountable to its publics and linking science and society (Barry & Born, 2010). It is carried out in social contexts, applied and critical, and actively engages heterogeneous groups of stakeholders—what we might also describe as eco-social practices. **Arts-based research and creative practice can support the interconnectedness of human and environmental well-being, enable genuine societal engagement, and offer approaches that differ radically from transactional, extractive models of participation.** These projects introduce deliberate designs and methods of co-creating with individuals, building trust, and situating problems in the contexts of those most concerned and most impacted.

Methodologically, **S+T+ARTS Prize projects strongly demonstrate how multiple-helix collaboration can be applied and materialised with human-centric qualities.** They offer real-world examples of what established scholarship seeks to theorise and further develop as key principles of the European research environment. They push research to go beyond solutions; in other words, a distinguishing quality of **excellence becomes more than problem-solving**. These projects show a profound interest in the politics of knowledge and **an ambition to explore what is least investigated, tracing unusual connections that open new research paths.** By deliberately inviting

cross-fertilisation and "contamination" across the arts, technology, and sciences, **S+T+ARTS Prize projects invite alternative thinking, pluralist knowledge creation, and meaning-making through making latent and hidden systems visible**. In that respect, they make a strong case for the value of staying with the trouble (Haraway, 2016), and ultimately moving beyond solutionism. While transdisciplinary research and knowledge can be considered the red thread across all S+T+ARTS schemes, the distinct quality of "more than solution" is especially visible in works such as *Antarctic Resolution* by Giulia Foscari, *Broken Spectre* by Richard Mosse, *Anatomy of an AI* by Kate Crawford and Vladan Joler, and *Oceans in Transformation* by Territorial Agency.

NOVELTY

Expectedly, the novelty cluster (see Figure 5) emerged as another strong theme. S+T+ARTS Prize projects are fundamentally recognised and rewarded for their innovative and novel qualities. However, it is important to acknowledge that their **novelty and innovation go beyond an economic understanding focused on productivity and utility. These projects offer real-world examples of systemic and critical responses to complex urgencies, demonstrating how contested terms such as social and ecological innovation can be materialised in practice.** In this sense, they draw attention to qualities of excellence that distinguish between novelty and innovation, while also showing how these concepts can be reimagined and unpacked to extend their semantic, cognitive, and perceptual boundaries. Novelty as a quality is explained and unpacked in detail in the preceding section, Mapping excellence (p. 12).

The remaining clusters introduce the main ideas revealed through content analysis and interviews, discussing how S+T+ARTS Prize projects both fulfil and move beyond theorised models of multi-helix innovation, transdisciplinarity, and responsible research and innovation frameworks.

VALUE AND CONCERN-DRIVEN RESEARCH

Human endeavours in knowledge creation and new technologies are contextual and therefore non-neutral. Concepts used to describe qualities of excellence notably refer to practices that are **human-centred**, **concern-driven**, **empathic**, **promoting social and political awareness**, **addressing injustices**, and **encouraging proactive responses to urgent challenges**.

In this respect, S+T+ARTS Prize projects boldly engage with the politics of research, creating conditions for postmodern science to flourish. **They embed critical research methods and tools, and offer visionary, nuanced examples of how a deep and involved sense of care can strengthen rigour in research and creative practice**—mobilising communities and shifting the course of policy and technology. As such, these projects build bridges between theories of care and the practice of RRI as **a collective**, **anticipatory**, and **reflexive approach**. RRI aims to ensure that science and technology develop ethically and sustainably, and in alignment with societal needs, values, and expectations. It also seeks to shape innovation trajectories so that they are inclusive, socially desirable, and responsive to emerging challenges.

These ambitions place significant pressure on how we frame research and, more pragmatically, on how research can embed such elements—some of which may even appear problematic within traditions of objective science. In that respect, S+T+ARTS Prize projects demonstrate rigorous artistic research (see *Broken Spectre*, *Oceans in Transformation*, *VFRAME* by Adam Harvey, and *Antarctic Resolution*) that not only offers concrete approaches to RRI, but also invites and encourages action (see *Pollinator Pathmaker* by Alexandra Daisy Ginsberg, *Holly+* by Holly Herndon and Mat Dryhurst / Herndon Dryhurst Studio, *Avatar Robot Café* by Ory Lab Inc., *OYAMATSU* Design Studio and TASUKI Inc., and *Sociality* by Paolo Cirio) in ways that are **socially approachable**, **culturally relatable**, and **widely actionable**. Such outcomes may be among the ambitions of RRI, yet they often sit outside the institutional structures of modern scientific research and innovation. In this way, value-driven research as a marker of excellence both delivers on—and extends beyond—the principles of RRI.

AGENCY

Accordingly, the S+T+ARTS Prize pool of research and creative projects exhibits a strong claim to agency. The notion of agency as described in feminist technoscience (Pickering, 2024) marks an intellectual break from strict material and human-centred binaries (subject/object; human/non-human). It builds on the idea that things can act and influence events in ways that exceed direct human control, and that agency emerges from interactions between humans and non-humans rather than being an inherent trait (Cozza, 2021). This feature emerged through consistent remarks about how these projects deliberately embed community activation, going beyond participation in the classical sense. S+T+ARTS projects induce critical thinking and empower through critical making, sensitising, and catalysing positive social change (e.g., *Avatar Robot Café* by Ory Lab Inc. and collaborators; *Plant Intelligence Plan* by Zhang Tianyi; *Sociality* by Paolo Cirio; *Project Habitate* by Yuning Chan, Tom Hartley, and Yishan Qin). These projects disrupt classical boundaries between human subjects and objects, strongly connect to value-driven research, and displace entrenched notions of the self and the other—including technology. Ultimately, this type of creative research exposes both the political character and the limitations of an entirely positivist, objective science.

These constructs guided our analysis towards more nuanced readings. Drawing on the inspiration and insights gathered from experts and S+T+ARTS ecosystem partners, we returned to the material with a more critical lens. This reading was then complemented by further conversations with experts. Ultimately, a broader map of excellence indicators and qualities emerged, helping us to unpack complex concepts and individual perceptions.

MAPPING THE EXCELLENCE

The four main clusters provided entry points for further discussion and opportunities for deeper readings across interviews and jury statements. Accordingly, we expanded the notion of excellence, which revealed seven distinct but interconnected nodes. In this respect, excellence can be understood as a combination of a philosophy of knowledge creation (research) and creative practice, and the building blocks that support it. This philosophy is underpinned by engaged care and concern, and by value-driven research. Its building blocks are **agency**, **boundary work**, **change**, and **novelty**.

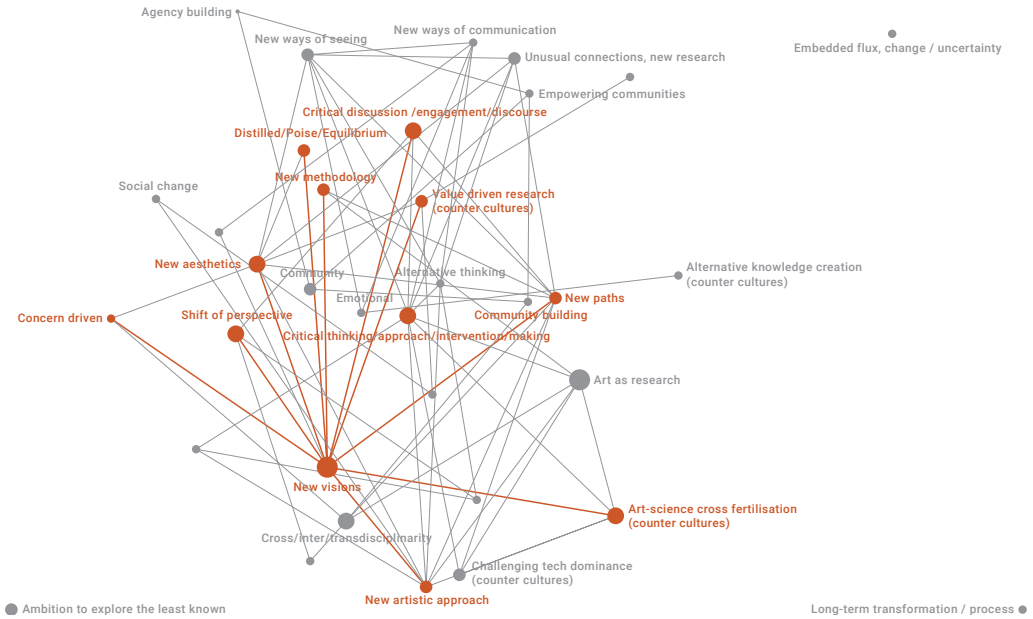

Figure 5: Granular excellence landscape

The landscape of excellence is messy and highly interconnected. It accommodates outliers as much as clustered ideas (as indicated by co-occurring concepts), as well as high-volume ideas (reflected in the number of mentions).

This set of constellations is the result of our final coding of the content including expert interviews and jury statements. As can be seen, the concept of the new, art as research and criticality dominate the art-science-technology excellence space. Thematic clustering of these concepts which occur most frequently helped us organize constructs of excellence more meaningfully. These clusters are established on the basis of codes that showed contextual similarity, complementarity which were validated by co-occurrence. We focused on codes which were relatively more consistently and repeatedly used (10+ occurrences).

Accordingly, S+T+ARTS Prize excellence is a product of **seven pillars**. These pillars show that **novelty**, **concern-driven research** and **boundary work** are qualities of excellence that appear most and relatively equal to each other with respect to how prevalent they are. They are followed by qualities of **agency**, **criticality**, **driving change** and **value-embedded research**.

Figure 6: Seven pillars of the S+T+ARTS Prize excellence

Each thematic cluster contains selected codes, which help describe different aspects of that cluster. Accordingly, we propose a mapping for S+T+ARTS Prize excellence and discuss each cluster of excellence in detail below.

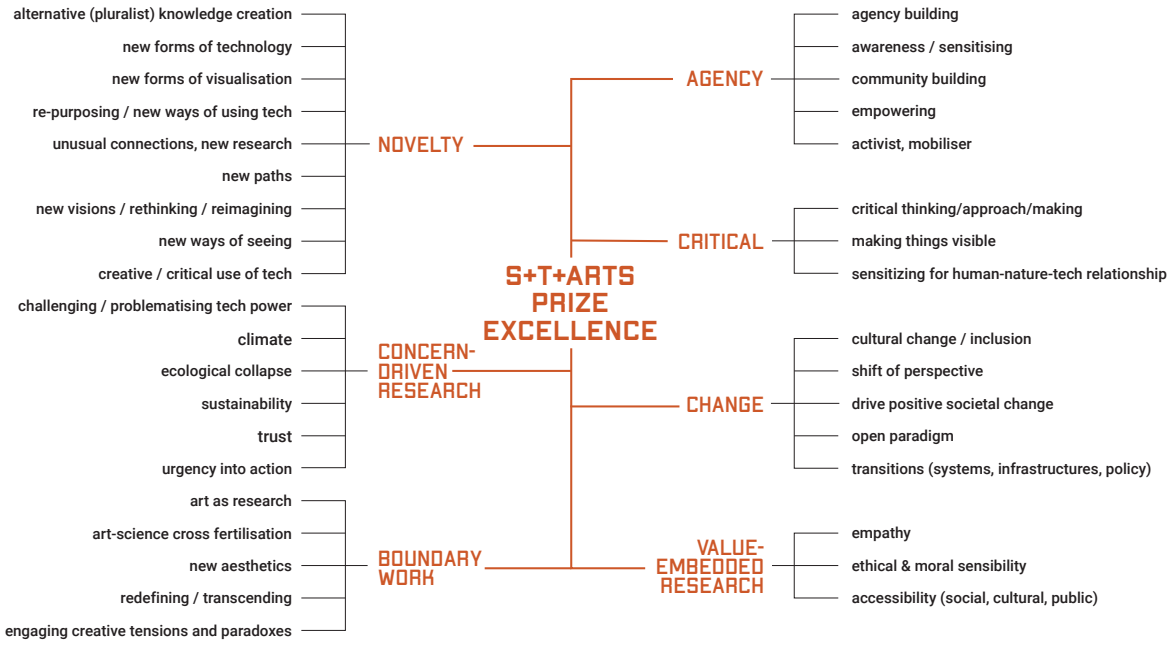

Figure 7: Mapping excellence.

NOVELTY

Undeniably, the most prominent quality of excellence is novelty. We often define what is **novel** through mainstream ideas of newness and through the innovation economy's notion of being **beyond the state of the art**. Many of these concepts, however, have reached the limits of their meaning and have become almost hollow. S+T+ARTS Prize projects offer very clear propositions as to what can constitute the novel across a vast realm of possibilities.

Novelty in the S+T+ARTS Prize most characteristically encapsulates **alternative knowledge creation and alternative ways of thinking**. In this context, novelty can imply **new technological forms**, **new applications for technology**, **new ways of seeing**, **understanding**, **and visualising**, **new pathways and visions**, and **unforeseen research trajectories**.

I am Humanity by Yakushimaru is one example. It is a pop music composition that uses the genetic code of Synechococcus, a type of cyanobacterium, as its foundation. The music is encoded into a long DNA sequence and inserted into a genetically modified microorganism, allowing it to carry the music within its own genome and self-replicate indefinitely. Even if humanity were to become extinct, the organism—and the music encoded in its DNA—could endure, waiting for a future species to discover and decode it. By working with genes as a medium, Yakushimaru takes biotechnology beyond DIY labs and experimental circles, bringing it into the realm of mainstream pop culture and opening new research visions for scientific institutions.

CONCERN-DRIVEN RESEARCH

A considerable number of S+T+ARTS Prize projects seem to emerge from concerned and critical views of what is perceived as unjust, unequal, urgent, and an impediment to sustainable and fair futures for humans and other-than-humans. In this respect, **the driver—and often the central focus—of research and creative practice emerges from care and concern around complex issues** such as climate, (humanitarian) justice, ecological collapse, sustainability, trust, and the problematisation of power, particularly power shaped by digital and technological dominance. Many projects make **strong propositions**, **cultivate deep public sensitivities**, and **call for action**.

As early as 2017, S+T+ARTS Prize projects highlighted a wide spectrum of societal and ecological concerns. Artistic research notably arose from disturbances around climate, injustice, humanitarian issues, and/or power asymmetries, which permeate broader systems of knowledge creation, technology design, and ensuing economic orders. These projects can be boldly provocative, political, and deeply sensitising. From *Broken Spectre* by Richard Mosse to technologies of inclusion exemplified by the *3arabizi* Keyboard by Hadeer Omar, or the *Tablet for the Blind* by Kristina Tsvetanova and Slavi Slavev, artists have made the unseen visible, exposing the weaknesses of mass-consumption technologies.

BOUNDARY WORK

This is a distinct quality that materialises the balance between science, technology, and art—distinct in the sense that such elements are uniquely sought out and recognised within this hybrid mode of research and creative practice. This pillar reinforces art as research, **pushing established forms of knowledge creation into a boundary zone of pluralistic knowing**. Boundary work also implies **deliberate cross-fertilisation between art and science**.

SimCath by Fernando Bello, ICCESS, Salomé Bazin, and Cellule Studio offers one example of this cross-fertilisation, bringing together performative art, behavioural science, scenography, product design, and human–machine interaction through surgical simulation. The collaborators compare the process to building a theatre set: a stage that recreates the surgical environment so convincingly that surgeons, acting within their roles, become immersed in the performance of surgery and in the dynamics of the clinician–patient relationship.

At the same time, boundary work can involve **engaging directly with creative tensions and paradoxes**, as in *Anatomy of an AI System* by Kate Crawford and Vladan Joler. The project combines a large-scale map and a long-form essay to investigate the human labour, data, and planetary resources required to build and operate an Amazon Echo. Its stacked imagery and narrative go well beyond the technical stack of data modelling, hardware, servers, and networks. By tracing the resources and transactions involved, the work foregrounds the entanglements of capital, labour, and nature—and shows how the social, environmental, economic, and political costs of these systems can remain hidden.

In addition, boundary work can shift how we perceive aesthetics. Many experts reflected on **the emergence of new aesthetics** in which form appears distilled—held in poise or equilibrium—so that **the resulting works resist classification as purely art, science, or technology**. From *Growing Pavilion* by Pascal Leboucq to *Metabollica* by Thomas Feuerstein, or *Computer 1.0* by Julian Goldman and Victoria Manganiello, these works embody an aesthetic that challenges conventional assumptions about art and aesthetics. Neither the object nor the research process behind it overstates art, science, or technology. This emerging aesthetic contributes to innovation in art, helps boundary work travel across diverse social and cultural contexts, connects distant knowledge domains, and encourages broader participation in knowledge- and meaning-making.

AGENCY

This is another distinctive quality that is consistently acknowledged in S+T+ARTS Prize projects. Building and shifting agency is a foundational element—an intentionally embedded feature of these projects. *Oceans in Transformation* by Territorial Agency and *Pollinator Pathmaker* by Alexandra Daisy Ginsberg, for instance, demonstrate agency-building not only for citizens and societal actors at large, but also for the planet and other-than-human beings, by placing them at the enter of action. Such agency takes many forms, ranging from **visual policymaking, awareness-raising** and **sensitisation** to **community-building, empowerment, activation,** and **mobilisation**.

In this sense, it goes beyond the ideals of RRI and transdisciplinary research, where participation often aims at inclusion but can remain loosely defined. In practice, meaningful inclusion of wider constituencies—such as citizens, marginalised groups, and especially more-than-human actors—rarely moves beyond transactional modes of engagement. Participants are frequently asked to contribute, but are then excluded from later stages of problem-solving and implementation.

While five-helix models outline an ideal collaborative environment, we still lack robust knowledge, tools, and practices for ensuring that deeply silenced voices are genuinely heard. Yet, when carefully pursued, agency within research and responsible innovation has the potential to significantly enrich the policy agenda. Against this backdrop, S+T+ARTS Prize projects stand out for **moving beyond transactional models and offering concrete examples of how meaningful inclusion in research and knowledge creation can be achieved**.

CRITICALITY

Another core aspect of S+T+ARTS Prize excellence is a critical mindset. All projects demonstrate this quality, and some are particularly recognised for the sharp and provocative ways in which they expose tensions and invite critical reflection. Criticality manifests through critical thinking and critical making: **it triggers debate, questions the status quo and its underlying assumptions,** and **scrutinises how we design, deploy, and consume technology.** It is also expressed through aesthetic choices that make problems—complex issues, urgencies, and dissonances—acutely visible.

Projects such as *Inanimate Species* by Joana Moll reveal a possible correlation between the ubiquity of microprocessors, the growth of their computational power, and the acceleration of extinction processes. Similarly, *Sociality* by Paolo Cirio exposes more than twenty thousand patents for socially manipulative information technologies. The list is long, and it is neither possible nor necessary to make it exhaustive: critical investigation, reflection, and the aesthetics that follow are almost a trademark of S+T+ARTS.

These projects **sensitise publics to the consequential links between our choices, our cognitive dissonances, and the compounding complex issues we create and perpetuate systemically**. In this sense, by sustaining a rigorously critical stance, S+T+ARTS projects reveal **the politics of research and aesthetics, disrupting modern notions of objectivity**. They exemplify critical thinking as both practice and application—driven by curiosity, challenging the status quo, and sharpening the core ideas that shape the research questions, investigative processes, and creative works.

CHANGE

S+T+ARTS Prize works commonly make strong propositions for change. Change is a buzzword in the impact lexicon, yet it is among the least understood concepts at a systems level: difficult to translate into practice and, consequently, difficult to measure meaningfully. For this reason, it is important to frame change more concretely in the context of the S+T+ARTS Prize.

These projects characteristically materialise open systems, which inherently compel us to imagine alternative futures. Some remain speculative, while others demonstrate what is possible. *Holly+*, for example, as an open platform that radically disrupts copyright logic, opens new possibilities for creative sourcing, distribution, and business models, while also shifting the agency of ownership across digital and human infrastructures.

Another important dimension of change is these projects' **capacity to drive positive societal outcomes**. *Library of Ourselves* by BeAnotherLab is a striking example: a decentralised initiative aimed at fostering meaningful interactions between communities in conflict. Its goal is to enable measurable social change on issues such as migration and marginalisation within local contexts. By building connections among participants, the project encourages collaboration and shared effort. Grassroots organisations and communities directly impacted by the themes can engage more deeply through co-designed activities, **strengthening community organisation and producing tangible real-world outcomes**.

At the intersection of critical thinking and change, we also observe these projects' **ability to shift perspectives. Where change connects with concern- and care-driven research, we see S+T+ARTS Prize excellence driving cultural change, including inclusion**. The S+T+ARTS approach has advanced the understanding that justice and inclusivity are complex ideals that do not align easily with the logics of scale, mass appeal, or popularity. Instead, it embraces a one-size-fits-one approach, centring attention on silenced and marginalised voices. As one expert commented: "[Art-science] presents **a counterculture to the prevalent culture of science only or medicine only or engineering only…** you can make a technology intervention that benefits one person, even if it's one person with a very complex set of disabilities or social circumstances. Then in a one-size-fits-one or n equals one research study from the arts as well as in the sciences you can demonstrate value to one is value to all so long as we explain how, we capture the moments of transformation."

Overall, across these channels, the projects make **a case for system transitions**—encouraging policy- and institution-level action to recognise boundary work as worthy of rigorous social-impact investment, and to strengthen policies that incentivise RRI.

VALUE-EMBEDDED RESEARCH

Finally, we observe consistent—though less explicitly articulated—instances of value-embedded research. **Empathy, ethical sensibility, value-driven inquiry, and the social and cultural accessibility of research** are distinctive qualities that recur across S+T+ARTS Prize projects. This aspect is perhaps the most challenging to articulate in terms of universal values, and it invites layered philosophical questions about whose values, which values, and the limits of universalist thinking.

However, the core idea of value-embedded research is not a search for universal values so much as a recognition that neither scientific research nor technology is neutral. We frame questions, devise solutions, and build technologies in ways that encode assumptions and biases. These projects aim to uncover such hidden biases in systems, make them visible to critical scrutiny, and feed this awareness back into reflective practice—guiding thinking towards more equitable value systems and encouraging action that aligns with them.

Lastly, we examined whether these qualities of excellence show any patterns, shifts, or differences across award categories. This overview of S+T+ARTS Prize projects shows the number of projects that manifest the qualities of excellence identified through our coding. Our analysis indicates that:

1. **Seven key categories** of excellence are observed.
2. These categories, and the supporting perspectives captured in quotations, account for **96% of the coded quoted content** across the diverse project descriptions and jury statements.
3. These characteristics of excellence are **not confined only to Grand Prize winners**; they also permeate and define the wider selection of nominated projects and honorary mentions.
4. The early years (2016–2018) show a concentration on **novelty** and are distinguished by **a mutual fascination between art and technology** (Wilson, 2003). In later years, more distinct qualities—such as **new ways of using technology** and **novel modes of visualisation**—become more prominent. Over time, excellence in S+T+ARTS Prize projects **increasingly emphasises critical perspectives**, **ethics**, and **the politics of technology**, rather than being perceived primarily as eclectic aesthetic experimentation.
5. From 2019 onwards, projects contribute most substantially to the distinguishing characteristics of S+T+ARTS Prize excellence, setting **new directions in research that integrate change, concern, and critical engagement**.

As mentioned earlier, as granular as the notion of excellence can be, it is situational, changing and shifting across these concepts based on the context of research. This observation was revealed further during the workshops and interviews. It is important to understand these elements and acknowledge that excellence is more of a framework than a formula.

Ultimately, we propose an alternative map of excellence unveiling the features and qualities most distinctly acknowledged in S+T+ARTS Prize projects. We propose that by means of consciously filtering for and considering these qualities in the design of future research and innovation programs, there is a stronger position for European research culture that is unique, distinctly constructive, responsible, accountable and competitive.

Total quotes	Category	Code	Supporting quotations		Number of projects								
			S*	I*	2016	2017	2018	2019	2020	2021	2022	2023	2024
155	Novelty	Alternative knowledge creation	16	9		1	1		3	6		1	
	Novelty	New forms of technology	34						3	6	2	2	2
	Novelty	New ways of using tech	27	3	3	1		1	2	6	1		1
	Novelty	New form visualisation	10		2	1			2	2			
	Novelty	New paths	30	10	1	2	3	5	3	5	2		3
	Novelty	New visions	10	23	2	2	1			2			
	Novelty	New ways of seeing	27	11	3	1	2	1	4	4	2	1	3
	Novelty	Unusual connections	20	8				5	5	3			
	Novelty	Creative use of technology	15		2		2	2	2		1		3
	Novelty	Rethink	13			3					3	1	1
150	Concern	Challenging tech dominance	9	7				1	2				1
	Concern	Concern-driven	115	4	1	7	5	2		4	5	7	4
	Concern	Urgency into action	15			GJS*	GJS*		1	1	1	6	
	Concern	Story telling	11							1	1	1	4
140	Boundary work	Art as research	17	22				5	4	5			1
	Boundary work	Art science cross-fertilisation	37	10		1	1	6	4	3	1		5
	Boundary work	New Aesthetics	7	25					1	2			1
	Boundary work	Cross/Inter/Transdisciplinary	29	18	4	3	2	4	1		1	2	3
	Boundary work	Redefining/ transcending	15	5				1	2	3	1	3	
	Boundary work	Creative tensions and paradoxes	17					2	6	4			
105	Agency	Activist / mobilizer art	15	5			1	1	3	2	1		
	Agency	Agency building	22	2			1	5	1	3	3		
	Agency	Awareness	25	2		4	1	4	1	4	2	4	1
	Agency	Community building	20	4	1	1	3	2		1	1	2	6
	Agency	Empowering communities	12			1	2	2					2
	Agency	DIY	11				4	2	1		1		
81	Critical	Critical thinking	46	31	1	2		5	6	5	2		3
	Critical	Making things visible	15			1		2	1	2	1		6
	Critical	Sensitizing for human-nature-tech	20					1	5	6			
71	Change	Cultural change / inclusion	10		GJS*	1	1	GJS*	1		GJS*		1
	Change	Shift of perspective	9	12		5	2		1			1	1
	Change	Drive positive societal change	12			1	1	2	1	1			
	Change	Envisioning future	13		1	2	3				2		
	Change	Open platform/ tool	13		3		2		3		1	1	1
	Change	Transitions	14		GJS*		2				4	3	
27	Value	Empathy	19			6	2	1	GJS*	1		2	1
	Value	Ethical sensibility	8					1	4			GJS*	
	Value	Value driven research		8									
	Value	Publicly / Culturally accessible		11									

S+T+ARTS Prize Projects Analysed	2016	2017	2018	2019	2020	2021	2022	2023	2024	TOTAL
Grand Prize Artistic Exploration	1	1	1	1	1	1	1	1	1	**9**
Grand Prize Innovative Collaboration	1	1	1	1	1	1	1	1	1	**9**
Honorary Mention	10	10	10	8	10	10	10	9	10	**87**
										105
Grand Prize Mix										
General Mix										

Figure 8: Excellence building blocks (S = Jury statements, I = Interviews, GJS = General Jury Statements)

VARIABLES OF EXCELLENCE: ACCESSIBILITY AND MATURITY

As suggested earlier, we recognise that excellence is contextual and situated, shaped by how projects materialise, how they influence outcomes, and how their impact extends beyond the projects themselves. Interview insights revealed that indicators of excellence, as well as the conditions necessary to achieve them, varied slightly depending on a few factors. Most commonly, these factors were identified as **accessibility** and **maturity**.

Maturity relates to the different development cycles these research projects go through—sometimes linear, but often non-linear or spiral. Although we ultimately understand excellence as a cumulative judgement, each cycle contributes to different aspects and indicators of excellence. In other words, some indicators relate more to the quality of research and levels of criticality, while others—such as balanced aesthetics—manifest through sense-making and final production.

Another important aspect relates to levels of accessibility. Indicators of excellence associated with openness in research and innovation were largely dependent on how culturally accessible the work was. Each project description, as well as additional project resources, informed our insights into the platforms and channels artists used to share their work.

To visualise these findings, we created a graph mapping project maturity against levels of public accessibility. We returned to our coded data to identify how each project's outputs were described (e.g. research, prototype, demonstrator) and who was engaged or addressed at each phase (e.g. scientists, peers, the general public).

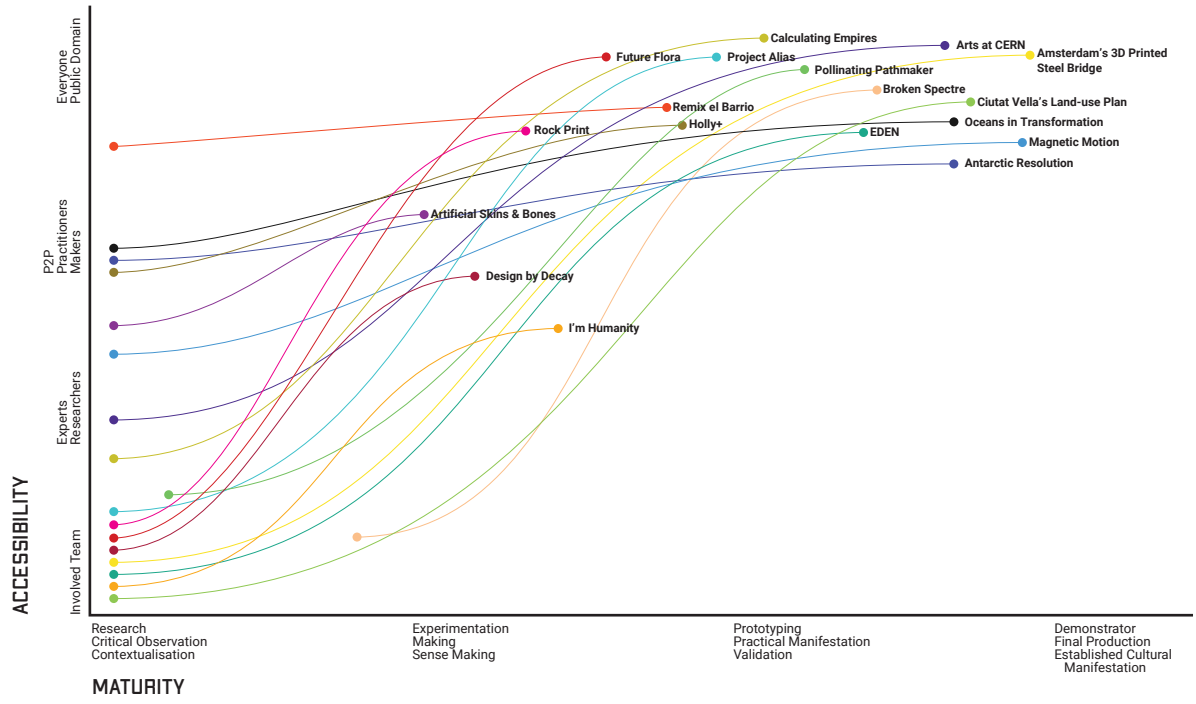

Figure 9: Accessibility & Maturity graph (S+T+ARTS Prize Grand Award winners)

The model of excellence is further unpacked based on two critical layers; namely levels of maturity and accessibility. Further research can identify which excellence qualities and conditions prevail based on these levels. But for now, the following discussion will help us understand in detail how these variables can be explained and exemplified across a diverse set of S+T+ARTS Prize projects.

To better understand the developmental trajectory of the projects, we identified four distinct levels of maturity. These range from initial phases focused on research and conceptual framing, to increasingly applied and outward-facing stages. Each level reflects a different degree of clarity, materialisation and public orientation: beginning with foundational research, followed by active exploration, then iterative prototyping and culminating in consolidated outputs that are positioned within public or cultural spaces. Four levels of maturity are explained below:

1. **Research, Critical Observation, Contextualisation:** Projects at this level are primarily engaged in framing questions, investigating context, and generating new insights without yet moving toward tangible outputs.
2. **Experimentation, Making, Sense-Making:** These initiatives involve testing materials, formats, or processes, using experimentation to explore possibilities and articulate direction.
3. **Prototyping, Practical Manifestation, Validation:** Work in this phase becomes more defined, with concrete forms or systems emerging, often subject to testing, refinement and feedback.
4. **Demonstrator, Final Production, Established Cultural Manifestation:** At this stage, projects are realised as finished works, demonstrators, or public presentations with a degree of stability and legibility for external audiences.

In parallel, we defined four levels of accessibility to understand who is able to engage with, contribute to and benefit from the outcomes of each project. These levels reflect the degree to which knowledge, processes and results are shared. Ranging from work that remains within a closed circle, to that which is openly disseminated to broader publics:

1. **Internal Team:** Access is limited to the core collaborators or institutional partners directly involved in the project's development.
2. **Expert Researchers:** The work is accessible to a specialised audience with relevant disciplinary knowledge, but may remain opaque or out of reach for others.
3. **Peer-to-Peer Practitioners, Makers:** Outputs are designed to be shared horizontally with others in similar roles or communities of practice, encouraging reuse, adaptation, or dialogue.
4. **General Public:** The project is made broadly available and understandable to non-expert audiences, often through public engagement strategies, accessible formats, or open-source sharing.

As the projects were mapped according to the two key dimensions, maturity and accessibility, a clear picture emerged of where each project sits in terms of development stage and openness: who was involved in the creation and research process, and who ultimately benefits from the outcomes. While this summary focuses on winners and honorary mentions, similar patterns were observed across the broader S+T+ARTS Prize portfolio. The visualisation highlights a spectrum of approaches, ranging from early-stage experimental work to fully developed, openly shared solutions.

WIDER LANDSCAPE OF S+T+ARTS PRIZE EXCELLENCE

The addition of qualitative insights from the interviews enabled us to further synthesise and cluster the findings into four overarching categories that describe the landscape of excellence within the S+T+ARTS framework: drivers, activity formats, results, and levels of maturity. These categories not only help us to better understand the distinctive characteristics of excellence but also provide a framework through which we dissect and examine them in greater depth in the sections that follow.

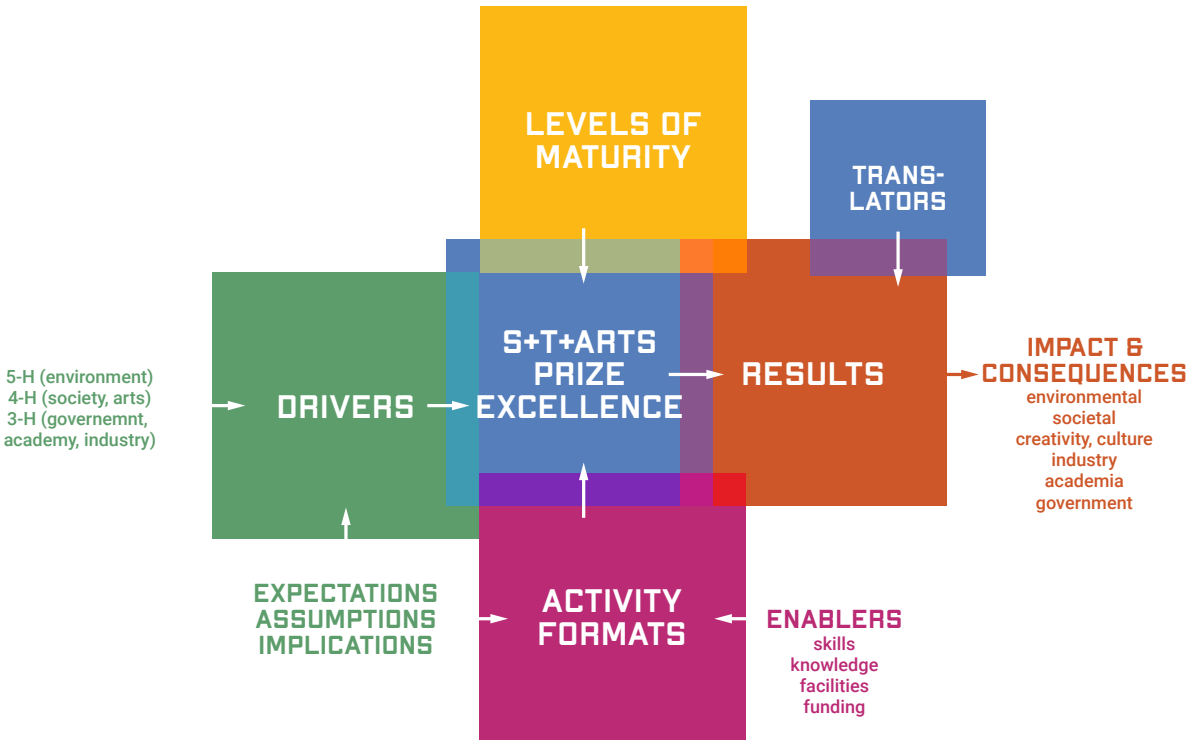

Figure 10: S+T+ARTS model of excellence

+ **Drivers.** Through our research, we encountered a wide spectrum of motivations, reflecting just how expansive and dynamic the field of artistic research is. Artists are driven by personal experiences, by ethical and political principles, by collaborations, by a desire to respond to urgent environmental challenges, or by a sense of wonder and connection to nature. Others were motivated by a commitment to inclusion, justice, or the need to question dominant systems and structures. This variety of drivers highlights the richness of the innovative potential embedded in artistic practices. It shows that artistic excellence is not the product of a single path, but emerges from diverse entry points and urgencies. The value of mapping these drivers lies in recognising how artistic work exceeds expected impact frameworks, engaging with social, ecological, technological and personal dimensions that might sit outside standard evaluation models.
+ **Activity format.** Several recurring formats emerged, including: experimentation, manifestos, mapping processes, participatory practices, research-based projects, residencies, multidisciplinary teams, lab-based explorations, co-creation and spin-offs. These formats reflect a shared ethos of collaboration, experimentation and research. They offer insight into how STARTS projects develop both methodologically and structurally. They illustrate the plurality of forms that artistic-technological collaborations can take, moving between individual and collective research, structured residencies and open-ended experiments, conceptual frameworks and tangible prototypes. This diversity of formats suggests that excellence does not arise from a single model, but rather from an ecosystem of interrelated approaches.

+ **Results.** This category builds on the already identified diverse artistic formats, but focuses more specifically on the types of results. What emerged is rich in its diversity: from installations to learning processes and methodologies, from musical pieces to new economic models, from biological machines to critical discussions, from material research to maps and diagrams. It also includes performances, urban planning interventions, publications and the development of new devices or tools. These are just a few examples as the list is much longer. This variety speaks volumes about the need, and therefore the necessary condition, not to predefine results within a collaboration. Artist-driven processes can, and often do, lead to many unexpected and context-specific outcomes that would be difficult to anticipate. Beyond documenting the variety of results, the analysis also considered who stands to benefit from these outcomes and who is able to access them. This led to a closer examination of the accessibility across the selected projects.
+ **Levels of Maturity.** To further contextualise these findings, we developed a mapping of project maturity and accessibility, illustrating how knowledge production often begins within expert communities and gradually expands towards broader publics. As projects evolve from initial research through prototyping and into demonstrator phases, there is a noticeable shift toward open knowledge-sharing and public engagement. This trajectory characterises the majority of projects reviewed and reflects a clear commitment to scalable, open and inclusive innovation within the STARTS framework.
+ **Translators.** One of the most significant insights emerging from the interviews and the AE workshop was the introduction of the concept of Translators. This notion surfaced as a recurring challenge and a critical gap within the S+T+ARTS ecosystem. Translators refer both to intermediaries who facilitate communication and mentorship between disciplines, and to those who can interpret and adapt the outcomes of artistic and scientific collaborations for broader publics. Their presence is essential condition to support projects throughout their long-term development.

S+T+ARTS PRIZE

CHAPTER III.
UNDERSTANDING EXCELLENCE PATHWAYS & CONDITIONS

In this chapter, we present the key findings on the enabling conditions and developmental pathways that support excellence across S+T+ARTS-awarded, nominated, and honoured projects. These insights are based on the methodology outlined in Chapter I and draw on a range of sources: jury feedback, project documentation, and a series of in-depth interviews with artists, jury members, and stakeholders across the S+T+ARTS ecosystem.

We identified a number of recurring elements—both structural and contextual—that appear consistently in projects recognised for their quality, innovation, and relevance.

Our research unfolded in two phases. In the first, we conducted a content analysis of project descriptions and jury evaluations. Rather than using a fixed set of categories, we allowed themes and codes to emerge from the material itself, focusing on working methods, enabling conditions, and strategies that appeared to signal excellence. In the second phase, we built on these initial insights by analysing interviews with artists and experts. This allowed us to take a deeper look at the conditions and contexts of excellence and to better understand how various elements—such as accessibility, drivers, activity formats, and results—connect and evolve over time. Together, these two steps helped shape the framework we present in this chapter, offering a clearer picture of what drives excellence in collaborative, art-led innovation within the S+T+ARTS ecosystem, and of the conditions required to support it.

CONDITIONS

Across both phases of this research, one category remained consistently central: enabling conditions. This theme first emerged organically during the content analysis and was further substantiated through the interviews conducted in the second phase. The core question underpinning this exploration was: what conditions do artists have—or need—in order to foster, develop, and achieve excellence?

From our analysis of project texts, jury feedback, and conversations with artists, jury members, and experts, a number of recurring conditions became clear:

+ **Access to infrastructure and/or mentoring was one of the most visible.** This included labs, hackerspaces, residencies, institutional settings, and informal networks—places that allowed artists to engage in long-term, experimental work. These environments offered time, space, and tools for development that would otherwise be difficult to sustain. “But that’s, that’s the task of the translator, so to say, or the incubator or what, what’s, what’s your name is, you need somebody who can bring, bring the, the artwork or the art inside the company or whatsoever.” — Interview recording, 2024

+ **Motivations matter.** What drives those who define challenges shapes what becomes possible: some projects are rooted in personal experience, others in situated practices, and others in broader technological, societal, or environmental concerns.
+ **Interdisciplinary and contaminative spaces**—settings where knowledge, people, and methods can move freely across boundaries—were another key condition. Many projects thrived where collaboration was not only encouraged but structurally supported, enabling artists to work side by side with scientists, technologists, communities, and policy actors. These exchanges created fertile ground for new ideas and forms to emerge. "And this is something that is crucial for S+T+ARTS, where collaboration doesn't happen only among clearly established fields, but is already present and S+T+ARTS somehow amplifies those collaborations and makes what used to be interdisciplinarity more of a pervasive dimension." — Interview recording, 2024
+ **Time** was also crucial. Most of the projects we analysed developed over extended periods—sometimes several years—and/or moved through multiple phases or iterations. This allowed artists to adapt, change direction, and deepen their work. Importantly, in many cases, institutions allowed the process to remain open-ended, without rigid deliverables or fixed frameworks. This openness gave space for innovation and complexity to expand. "Projects with significant impact require more time and resources than the S+T+ARTS ecosystem can typically offer." — Interview recording, 2024
+ **Community** came up repeatedly, not only as an outcome but often as a starting point. Many projects activated new communities; just as often, it was the presence of an existing ecosystem—people, places, or networks—that allowed the work to grow in the first place. "That kind of … having a museum space and organisational space as a learning place to grow was also incredibly valuable because you can't establish a network just like that." — Interview recording, 2024
+ **Funding**, finally, was essential. Almost every artist spoke about the importance of sustainable business models—not only to produce work, but to think, research, and collaborate over time. Stable funding made it possible to build trust, explore complex topics, and take creative risks. We observed a wide spectrum of funding approaches across the projects: cultural funds, commissioned work, crowdfunding, EU-funded projects, private foundations, public investment, research and innovation grants, self-funded efforts, start-up incubators, funded residencies, and support from NGOs or academic institutions. Many of these supported projects through multiple stages—from research and prototyping to public engagement and dissemination—allowing ideas to grow and evolve over time.

Finally, many other codes and categories emerged from our research and observations which, while they did not fit within the overarching structure we developed, are still worth noting. These include notions such as **hope, playfulness, trust, violence, imagination, care, empathy, uncertainty, and an ambition to explore the least-known**, among others. They highlight the emotional and conceptual range that characterises many S+T+ARTS projects and further underline the diversity and relevance of this ecosystem. This points to the urgency—and the fundamental need—to rely on art-driven practices as a means of generating innovative results. Here, we are not referring to measurable impact alone, but to the capacity to open up unexpected, unconventional, and deeply human pathways towards excellence.

S+T+ARTS PRIZE

CHAPTER IV.
CLOSING THE POLICY CYCLE

This chapter examines how S+T+ARTS Prize excellence, as previously identified, goes beyond the specific challenges, expected outcomes, and impacts defined by the Horizon Europe programme under which the S+T+ARTS Prize was developed. The analysis draws on Horizon open call documents (ICT-36-2016, ICT-44-2020, HORIZON-CL4-2023-HUMAN-01-82), project descriptions of funded S+T+ARTS Prize initiatives (S+T+ARTS Prize 2016, S+T+ARTS Prize 2021–2023, and S+T+ARTS Echo), examples of awarded projects (see Appendix), and S+T+ARTS Prize impact assessments.

All S+T+ARTS Prize projects were funded through the ICT and CL4 work programmes. The ICT-36-2016 call defined the challenge as enhancing collaboration between artists, entrepreneurs, and technologists by fostering a shared language and understanding to drive innovation at the intersection of science, technology, and the arts, with the expected impact being an exchange between ICT and creative industries. The ICT-44-2020 call defined the specific challenge as the adaptation of traditional media sectors to new technologies, with artists as drivers of such innovation, and with the expected impact in the domain of the European media ecosystem. The HORIZON-CL4-2023-HUMAN-01-82 call defined the expected outcome as a shift in mindset regarding the role of the arts in R&I, in the spirit of a European innovation policy based on culture and values [...] in the domain of digital innovation and the uptake of digital in society and the economy.

In practice, however, S+T+ARTS Prize projects have extended beyond these defined scopes. Projects have emphasised, on one hand, artistic works that not only drive technological innovation but also reshape how we understand and engage with technology. On the other, they have fostered promising new forms of collaboration between the private sector and the arts and culture sector. This has led to greater recognition of artists not only as creative innovators but also as researchers of emerging technologies and often-invisible systemic phenomena.

From the S+T+ARTS Prize 2016 through to the 2021–2023 editions, the awarded projects have evolved to address not only technological, social, and economic challenges but also ecological and environmental ones. The S+T+ARTS Echo project pushes this further, recognising that science, technology, and industry may be approaching an innovation plateau—and that alternative perspectives, such as those offered by artistic thinking, are vital for renewing innovation processes.

Over the years, S+T+ARTS Prize juries have consistently identified projects that respond to a broader range of policy challenges—not only within the digital and media fields targeted by the ICT and CL4 work programmes, but also across other Horizon Europe areas such as health, democracy, culture and heritage, cybersecurity, mobility, climate, environment, food systems, and core technological advancement.

Figure 11: Beyond expected impact

Figure 11 provides an overview of how selected and awarded S+T+ARTS Prize projects align with the EU Strategic Plan 2021–2024 and its six Horizon Europe clusters and mission areas. The mapping demonstrates that the drivers and results of these projects strongly match the agenda of the European Union and reveal an abundance of meaningful relationships between artistic inquiry and EU R&I priorities.

For this analysis, we revisited our qualitative dataset (documentation and jury statements for winners and honorary mentions), coded for drivers and results, and thematically mapped projects across the Horizon Europe clusters. This mapping exercise shows how S+T+ARTS Prize projects address both systemic and personal challenges, many of which fall outside traditional European R&I frameworks, while delivering substantial benefits to citizens, research and innovation actors, and future European policies. Drivers across projects demonstrate diverse motivations that exceed policy-specific challenges, while the public manifestations of results extend impact beyond expected collaborative sectors. Jury members, through their expertise, play a crucial role in identifying and articulating such excellence, which is best evidenced in their statements and in the selection of awarded projects. Overall, the mapping confirms that S+T+ARTS Prize projects are not peripheral to European research agendas but strongly resonate with Horizon Europe's mission-oriented clusters, reinforcing the pioneering role of art-led inquiry within EU research and innovation.The following examples illustrate how S+T+ARTS Prize projects align with the Horizon Europe clusters, showcasing the diversity of artistic approaches and the multiple ways in which they address key societal challenges

+ **Health.** Health-related challenges are addressed through projects such as Future Flora by Giulia Tomasello and Self-Care by Lyndsey Walsh. These works engage with health not only as a general challenge but also through lived experience, exploring personal, family, and workshop-based dimensions of wellbeing.
+ **Culture, Creativity and Inclusive Society.** Projects like Broken Spectre by Richard Mosse, Sensing for Justice by Anna Berti Suman, and Cleaning Emotional Data by Elisa Giardina Papa extend beyond cultural production. They demonstrate how societal and personal vulnerabilities can be investigated through innovative media technologies, from advanced imaging systems to environmental sensing tools.
+ **Civil Security for Society.** Democracy-related challenges are taken up by projects including Arte Eletrônica Indígena by Thydêwá, Calculating Empires: A Genealogy of Power and Technology, 1500–2025 by Kate Crawford and Vladan Joler, and Digital Violence: How the NSO Group Enables State Terror by Forensic Architecture. These works reveal the hidden powers and interests embedded in technological design, while also empowering communities to reclaim agency through technology.
+ **Climate, Energy and Mobility.** Projects such as Uitslot by Gijs Schalkx, Remix el Barrio by IAAC Fab Lab Barcelona, and How (Not) to Get Hit by a Self-Driving Car by Tomo Kihara and Daniel Coppen tackle climate and mobility challenges through playful and locally grounded interventions. Their approaches inspire community-led solutions that extend beyond purely industrial applications.
+ **Food, Bioeconomy, Natural Resources and Agriculture.** Grand prize winners like Oceans in Transformation by Territorial Agency, Pollinator Pathmaker by Alexandra Daisy Ginsberg, and The Exploded View Beyond Building by Biobased Creations exemplify maturity in addressing environmental issues. These projects propose beyond-systemic solutions while engaging the public directly in experiences of sustainable futures.

S+T+ARTS PRIZE

CONCLUSION

REDEFINING EXCELLENCE THROUGH S+T+ARTS

S+T+ARTS Prize projects pave the way for an alternative viewpoint on what constitutes excellence in creative and transdisciplinary research. They position art clearly on the map of research and innovation, showing the capacity of art not only to generate meaningful impact, but to reshape the very conditions that make innovation possible.

Through S+T+ARTS we begin changing the lexicon of excellence in inter- and transdisciplinary research to include key notions such as agency, criticality, systemic and social change, value-driven research, and boundary work. This requires the redefinition of transversal research and its building blocks. **Excellence becomes plural and situated: it embraces complexity, includes marginal voices, and challenges linear narratives of progress.**

S+T+ARTS also shows that excellence does not result from isolated genius. It is **cultivated through enabling conditions: access to resources and infrastructures, sustained long-term research, interdisciplinary contamination spaces, community engagement, sufficient development time, and compatible funding**. Crucially, it also depends on the presence of **translators — figures who navigate between worlds, mediate between institutions, and adapt outcomes for broader publics**. They are the connective tissue of collaboration, and their absence is often where projects falter.

Most projects matured from protected, experimental beginnings into public-facing experiences. This transition is more than communication—it marks a shift in mindset, an understanding that innovation must address the world beyond its origin, including ecological concerns, social tensions, and underrepresented perspectives. S+T+ARTS does not simply advocate inclusivity; it redefines it by placing what is often marginal at the centre.

This demands a different model of excellence: one that values process over product, mutual learning over disciplinary dominance, and relevance over novelty. The S+T+ARTS pathways of excellence amplify the need to see ecosystems in relation to context, unfolding through drivers, activity formats, and results that contribute in different ways to notions of excellence. They also remind us of **the instrumentality of enablers: layered infrastructures, communities, translation and mentoring roles, and spaces for experimentation.**

Despite the uniqueness of each project, shared learnings emerge that can benefit future collaborations, inform how cultural organisations develop S+T+ARTS programmes, and guide policymakers in embedding art into the broader European R&I agenda. In essence, **S+T+ARTS challenges conventional metrics and offers a richer, more humane foundation for future research and innovation.**

Ultimately, S+T+ARTS is helping redefine excellence as collective, contextual, and value-driven. It changes how we speak about research, how we structure collaboration, and how innovation serves society. By recognising these insights, policymakers, cultural organisations, and the S+T+ARTS community itself can shape a more responsive and humane future for European research and innovation.

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+ **Antarctic Resolution** by Giulia Foscari
+ **Broken Spectre** by Richard Mosse
+ **Anatomy of an AI** by Kate Crawford and Vladan Joler
+ **Oceans in Transformation** by Territorial Agency
+ **VFRAME** by Adam Harvey
+ **Pollinator Pathmaker** by Alexandra Daisy Ginsberg
+ **Holly+** by Holly Herndon, Mathew Dryhurst, Herndon Dryhurst Studio
+ **Avatar Robot Café** by Ory Lab Inc., OYAMATSU Design Studio, TASUKI Inc.
+ **Sociality** by Paolo Cirio
+ **Project Habitate** by Yuning Chan, Tom Hartley, Yishan Qin
+ **I'm Humanity** by Yakushimaru
+ **3arabizi** Keyboard by Hadeer Omar
+ **Tablet for the Blind** by Kristina Tsvetanova, Slavi Slavev / BLITAB Technology GmbH
+ **SimCath** by Fernando Bello, ICCESS & Salomé Bazin, Cellule Studio
+ **Growing Pavilion** by Pascal Leboucq, Biobased Creations / Company New Heroes
+ **Metabollica** by Thomas Feuerstein
+ **computer 1.0** by Julian Goldman, Victoria Manganiello, SOFT MONITOR
+ **Inanimate Species** by Joanna Moll
+ **Future Flora** by Giulia Tomasello
+ **Self-Care** by Lyndsey Walsh
+ **Sensing for Justice** by Anna Berti Suman
+ **Cleaning Emotional Data** by Elisa Giardina
+ **Arte Eletrônica Indígena** by Thydêwa
+ **Calculating Empires: A Genealogy of Power and Technology** by Kate Crawford and Vladen Joler
+ **Digital Violence: How the NSO Group Enables State Terror** by Forensic Architecture
+ **Uitslot** by Gijs Schalkx
+ **Remix el Barrio** by IAAC Fab Lab Barcelona
+ **How (not) to get hit by a self-driving car** by Tomo Kihara and Daniel Coppen
+ **The Exploded View Beyond Building** by Biobased Creations