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EDITORIAL

On Co-Creation

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In a famous thought experiment, the philosophers Andy Clark and David Chalmers (1998) imagined Otto, a man with failing memory who carries a notebook holding what he can no longer remember. Because he consults the notebook as reliably as the rest of us consult our own recall, they argued, the notebook is not an aid to his mind but part of it. The argument could therefore be extended that you do not "collaborate" with an external intelligence source that you routinely deploy any more than Otto "collaborates" with his notebook. Intelligence has never been confined to the inside of the head. It has lived in notebooks, libraries, instruments and other people for as long as those have existed, and the extended mind now has a strange new annexe. From that perspective, working with AI is, in an important respect, not "co-creation" at all. It is simply creation.

McLuhan (1964) asserts that the content of any new medium is its predecessor. In the case of LLM model training, this is quite literally true, and not just a useful metaphor for unfashionable media studies theorists. There is a collaborative relationship at play, but it operates at a deeper layer, with the vast body of human work swallowed whole by the training data. You are not collaborating with AI. You are collaborating with everyone whose writing, speech and imagery the model has absorbed. Most of them were never asked, and none of them is credited, but you are collaborating with them all the same.

Yet the papers in this issue push back on both positions, and they are right to. In the pages that follow, a glacier holds a conversation. Harry Yeff's paper describes an agentic voice system: an AI that speaks and listens, grounded in the research literature on the Thwaites Glacier in West Antarctica (Yeff, 2026). At the AI for Good Global Summit in Geneva, it held more than 3,000 conversations, adapting what it knew of ice loss and sea level to each listener in turn. Co-creation is plainly not restricted to transactions between humans. There is co-creation with other species and living systems, as the immunologists and the ocean-dataset builders in these pages suggest. There is co-creation with place, whether a garden at CERN or the waterscapes of Kumasi. There may be co-creation with intelligences that are built rather than evolved, which does not make them unnatural: tool-making is among the most natural behaviours of our species.

Which leaves a genuine puzzle. How can we be in collaboration with an intelligence that exists beyond us but is also, on the prosthetic view, as much a part of us as Otto's book is of him? Perhaps the simplest answer is that there is no conflict to resolve. The study of elusive, dual-natured phenomena is CERN's trade. Physics made its peace long ago with entities that are two things at once, particle and wave, depending on how you look. The intelligence we now work with is at once our own, an extension of the collective human record, and separate from us, a sounding board with our own voice in it (the "pet self" as Yeff described it in our MTF Labs in Stockholm back in 2018).

This is why three pieces in the Journal's conversational Coffee Paper format challenge us to consider how else we can co-create both with other humans and beyond. John Wood's glossary of co-creation runs from abductive reasoning to his own coinage *entredonneurship*, 'giving from between' rather than 'taking from between', and pauses to calculate, via Euler, that a quartet offers six times the potential synergies of a duet (Wood, 2026). Marta de Menezes and Luis Graca, artist and immunologist, argue that art and the immune system are structural cousins: adaptive systems that turn encounter into development, draw robustness from diversity rather than uniformity, and are both, in their lovely phrase, *poised toward what has not yet arrived* (de Menezes and Graca, 2026). Kat Austen begins on a bus in Seoul and ends on the Irish coast, where around 100 handmade images from Galway coastal communities became the training data for a generative model trained entirely on renewable energy (Austen, 2026). The model helps people envision a liveable ocean future rather than remix the world as it is. Her question deserves to be quoted whole: *"What if we build AI not on the fragments of the shape of the world that is, but on the shapes of the worlds to which we collectively aspire?"*

From conversations with glaciers to grafting one's partner's cells on one's body: that is the span of this issue. The question is who gets to make knowledge, with whom, and on whose terms. The range of the issue starts with definitions, then people and power, then spaces and structures, then machines, and ends with hope. This issue is about making knowledge together, across boundaries that often keep the makers apart. It is, by quite some distance, the largest issue this Journal has yet published.

A cluster of papers takes co-creation to places where the stakes are immediate, and the power relations are not abstractions. Barcham's study of extended reality

prototypes for climate resilience is written from the inside, from the author's own Māori hapū (clan) in Hawke's Bay (Barcham, 2026). It shows how even a well-intentioned participatory process can reproduce colonial dynamics when data, platforms and resources remain in external hands. Lauterbach and colleagues hand the research process itself to musicians: an established highlife band and six community musicians in Kumasi, Ghana, who conducted their own fieldwork and co-wrote a song about urban water, on the understanding that a lyric can carry knowledge about living with polluted water that no policy document can convey (Lauterbach et al., 2026). Saienko and colleagues work with six third-sector organisations in Dundee for whom, as one participant put it, "Data work is not a part-time undertaking", and use participatory design both to surface and begin to redress that asymmetry of data power (Saienko and De Paoli, 2026). Costa and colleagues take us into the boxing gym, where an embedded researcher, a former competitive boxer and referee, mediates between the mouthguard data and the lived expertise of athletes whose sport's health evidence was built around men (Costa et al., 2026). Bugler and colleagues, working from a co-design project with young adults in Cape Town, ask a question every participatory researcher will recognise: when the workshop is over, and the analysis begins, can anyone retrace how the participants' words became the researcher's findings? Their answer, a discipline of traceability on a shared digital whiteboard, is one of the transferable and applicable gifts of this issue (Bugler et al., 2026).

A second cluster examines the rooms and structures in which co-creation is staged. Suominen and Jussila look back at 17 educational hackathons in Finland and find that, across their cases, the ideas that survived the weekend were those where an external problem owner was present and the event had a deliberate afterlife (Suominen and Jussila, 2026). Their evidence includes a student concept, brewed from a food company's surplus cucumbers, that ended up on shop shelves, and a recurring failure they call the torso problem: a well-built event with no afterlife. Bonucci and colleagues compress co-creation into 90 minutes at the Brussels final conference of ATTRACT, the EU initiative to turn big-science technology into applications (Bonucci et al., 2026). Even under those constraints, they show that 25 mixed teams can produce comparable, analysable pathways from big-science resources to societal challenges. Hofmann and Alliss bring school students into MRI sequence development at a Fraunhofer institute in Bremen, with glass art as the bridge: the glass appears in the scanner as negative space, and the students' reported understanding of the physics rose dramatically over two days (Hofmann and Alliss, 2026). Beigel asks how the paradoxes of structured freedom shape co-creation in learning and teaching, where the invitation to co-create is itself a form of structure (Beigel, 2026). Bartoloni and Strigari trace how astroparticle physics and space radiobiology built a shared practice out of what the literature calls boundary objects, artefacts that both sides can hold on to: a shared ontology, dose-effect models, curated datasets (Bartoloni and Strigari, 2026). The paper proposes tools for logging who decided what, and who is owed credit, in cross-domain work. Tanaka and Ito describe a project that lives permanently at CERN: a garden of suspended silk threads in lilac, wisteria and violet, designed with students from two universities in Japan through the lens of Japanese aesthetics and particle physics, begun in 2018 and completed through the pandemic, and the practical constraints of building anything at CERN (Tanaka and Ito, 2026). Clarke and colleagues propose that a participatory sound platform with some 10,000 users can be governed as an experimental data commons for health research, provided consent, provenance and attribution are engineered in from the start (Clarke et al., 2026).

A large share of the submissions we received concerned artificial intelligence, and we accepted the strongest of them, in part, because they disagreed with one another. Gelner and colleagues pitted six engineers against an enterprise language model on a corpus of battery-test reports and found the machine to be faster, but more often wrong (Gelner et al., 2026). Tellingly, it could not conclude that an answer simply was not in the documents, a judgement all six engineers made correctly. Silver, Morrow and De Paoli's methodology draws a firm line: in the TALLMesh workflow for thematic analysis (the craft of finding the themes in a body of interviews and texts), the language model processes patterns but "does not function as an analyst or collaborator", and accountability stays with the researcher (Silver et al., 2026). Ochiai proposes an AI convenor for multi-domain co-creation and, with the understanding that convening is a form of power, sets hard boundaries and escalation rules before facilitating anything (Ochiai, 2026). Zampirolo and colleagues treat the governance of AI itself as a co-creation problem, to be worked out by the people who share the dilemma rather than specified top-down (Zampirolo et al., 2026). Shen and Iandoli teach students to prompt critically and watch their creative agency grow rather than shrink (Shen and Iandoli, 2026). Quiñones-Gómez surveys professional designers and maps the roles and responsibilities they actually grant AI in their work, and finds that trust follows transparency rather than sophistication (Quiñones-Gómez, 2026). Etezadi and colleagues' experiment uncovers a creativity discount: teammates known to use AI are rated less creative, and disclosure makes it worse. While a small study, it should give pause to anyone drafting a disclosure policy (Etezadi and Vaidya, 2026). Riznyk proposes community-owned linguistic datasets governed by collective vote, so that the languages that feed the models remain the possession of their speakers (Riznyk, 2026). Finally, Yeff, whose glacier opened this editorial, makes the boldest claim of all: that adaptive, listener-calibrated conversation is itself a co-creative act, and that meaning made this way belongs to neither party alone.

It is hard to imagine a better home for an issue on co-creation than this journal. CERN is itself among the great standing demonstrations of co-creation: between nation-states, between disciplines - art and science meeting at the highest levels - in pursuit of the smallest constituents

of the natural world and their own powerful interactions. Its commitment to Open Science extends the collaboration across time and distance to people who will never visit Geneva. That practice runs through this issue too: the aggregated data summaries and governance protocols behind Clarke and colleagues' participatory sound platform are already openly deposited in the Journal's community on Zenodo, CERN's open repository for research data, where anyone may build on it.

If the intelligence we now work with is indeed dual-natured, then CERN is the right context in which to examine it, and if anyone were to build a particle accelerator and collider for intelligence, IdeaSquare - CERN's experimental innovation space from which this journal takes its name - is exactly where you might expect to find it. One of us served a five-year term on the Advisory Board of IdeaSquare, and recognised in it something we knew from first-hand experience: what it takes to give a co-creation community a home.

We have over sixty years of co-creation practice between us, across design, media, data-driven technologies and the industries built on them. Since 2012, first as Music Tech Fest and then as MTF Labs, we have run 26 international events where scientists, artists, engineers, inventors, industry experts, and policymakers spend an intensive week building things together. In 2023, we brought the lab format to IdeaSquare itself, gathering New European Bauhaus thought leaders in think-and-do sessions in person for the first time. The community that has grown around those nomadic events now numbers 9,000 people, and one of its defining features is that nobody in the room is an expert on everything; everybody is an expert in a particular knowledge domain, and we progress by connecting the dots under the banner of grand missions such as Ecosystem Living or JUST Data. The community of the MTF Labs 'intelligence collider' vastly exceeds the attendance at any one of its collisions, and if, as Wood has it, four nodes offer far more possibilities than two, then 9,000 is a much bigger number than it appears.

The MTF Labs community has yielded a non-profit research institute, the Industry Commons Foundation. This is where the strange new annexe of the extended mind gets its architecture. Our project GRAPHIA is building an open knowledge graph for the social sciences and humanities: a connected map of the field's data that machines and people can both navigate. LUMEN is building federated discovery across scientific domains, so that a researcher in one field can find and use what another already knows. A language model on its own is a rear-view mirror, fluent about where we have been, but a poor navigational tool. Grounding it in verified knowledge, in facts and ontologies, is what makes it a trustworthy companion for where we are going, and that grounding is precisely what these infrastructures exist to build. In both projects, co-creation is a major research stream: it powers the innovation labs and is proving remarkable both as a way of generating new knowledge and as social glue for researchers working in diverse domains. We read Wnuk and colleagues' account of the OPERAS Innovation Lab, five years of work drawing on 655 participants from 33 countries, with more than usual interest: OPERAS is a partner in both projects, and their co-creation workshop, in October 2025, ran at our Innovation Prototyping Lab in Zagreb (Wnuk et al., 2026).

Co-Creation has become a working method within European research infrastructures, and it now turns up where nobody would once have imagined it. This includes large industrial AI programmes such as our project EuroFMX, where Test and Experimentation Facilities stimulate innovation co-creation processes, LLMs reference novel industrial ontologies, and Living Labs are deployed as a validation methodology. The value that emerges from all these experiments belongs to no single field and usually to no single person. That is the kind of co-creation we know first-hand, and it has informed our approach to this journal: a working familiarity with what happens in the space between knowledge domains.

It is also how this editorial team came together: we know our fellow guest editors, Anne Dvinge and Ana Kuštrak Korper, through the MTF Labs community. Anne is Senior Innovation Advisor for the social sciences, humanities and the arts at UCPH Lighthouse, the University of Copenhagen's innovation unit. She spent a decade as a music researcher, then founded Low-Fi, a platform that turned private living rooms into concert venues, with each event co-created by musicians, hosts, and audiences in cities from Copenhagen to Santiago. These days, her role is in helping researchers across the humanities translate their knowledge into impact. Ana wrote her doctorate on the role of service design in service innovation, a field in which co-creation is not a topic but the working method, and she now puts that research into practice as innovation coordinator and civic designer in the Mayor's Office of the City of Zagreb, while keeping a research foothold at Linköping. Both know the lab process from the inside, both brought their own disciplinary depth to the editorial table, and each handled a substantial section of this issue from first assignment to final recommendation. We are extremely grateful to them both.

We make no secret that some of the authors, too, are known to us through that same community, and that over the years several have become friends. Every research article here nonetheless passed rigorous peer review, exactly as it would in any issue of any other serious journal, and the price is that we have had to reject work by thinkers we know, respect, and will likely work with again. The reviews were anonymous, the standards were the Journal's, and friendship bought nobody an easier ride. The same discipline ran the other way: Matteo Vignoli, the Journal's Editor-in-Chief, is a co-author on one of the papers in this issue, and took no part in any decision concerning it. We are grateful to Matteo for his guidance and to the wonderful Valeria Brancolini at CIJ, who kept things on track and kept us moving, while handling record numbers of papers for typesetting.

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Between them, they carried out the peer review for this issue, with several taking on more than one manuscript and many returning for a second round. Their time and care were given to work that was not their own. In an issue about co-creation, that fact is worth highlighting. Some of the work in these pages was carried through genuine difficulty, including bereavement, and we are conscious of what it took to bring it to completion. The special issue was co-created by the guest editors, the authors, the reviewers, the CIJ editorial team and, in a real sense, the subject matter, and that collaboration lives in the gaps between the articles as much as in any single text.

This collection, formed of diverse voices, experimental practices, researchers from outside the traditional academy, and methods built on inclusion, is deliberately positioned as a rebuke against the forces that simplify, brutalise and exclude, and in outspoken favour of the things they attempt to degrade: scientific understanding, intellectual pursuit, truth, beauty.

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CONFLICT OF INTEREST

Andrew Dubber is Director of MTF Labs AB and Senior Researcher and Steering Board Member of the Industry Commons Foundation. Michela Magas is Chair and Director of Research and Innovation at the Industry Commons Foundation and CEO of MTF Labs AB. She has served a five-year term on the Advisory Board of CERN IdeaSquare (ISAB-G) and as an innovation advisor to the European Commission and G7 leaders. This editorial discusses MTF Labs, the Industry Commons Foundation and the Horizon Europe projects GRAPHIA, LUMEN and EuroFMX, in each of which both guest editors hold a research role. Work on this issue was supported in part by GRAPHIA (Grant Agreement No 101188018) and LUMEN (Grant Agreement No 101187940), both of which include the Industry Commons Foundation as a partner. OPERAS, whose Innovation Lab is the subject of Wnuk et al. (2026), coordinates GRAPHIA and is a partner in LUMEN, and the workshop that the paper describes took place at the Innovation Prototyping Lab run by the guest editors in Zagreb in October 2025.

REFERENCES

Austen, K. Collectively Reclaiming the Future in the age of AI. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 131-134. https://doi.org/10.23726/cij.2026.1928

Barcham, M. Decolonising Digital Co-Creation: Epistemic Pluralism and Indigenous Knowledge in Extended Reality (XR) Co-Creation for Climate Resilience. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 15-22. https://doi.org/10.23726/cij.2026.1820

Bartoloni, A., & Strigari, L. Co-creation that Leaves Traces in Space Radiobiology. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 107-115. https://doi.org/10.23726/cij.2026.1830

Beigel, J. When Freedom Is Structured: How Do Paradoxes Shape Co-Creation in Learning and Teaching? *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 92-106. https://doi.org/10.23726/cij.2026.1859

Bonucci, A., Graceffa, R., Sierra Andrés, M., & Vignoli, M. Co-creation Under Time Constraints. Designing and Evaluating a Conference-Compatible Collaboration Artifact in the ATTRACT Ecosystem. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 69-81. https://doi.org/10.23726/cij.2026.1866

Bugler, J., Cilliers, R., & Barnes, V. Sensemaking-As-Trace in Researcher-Led Synthesis of Co-Design Materials. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 44-51. https://doi.org/10.23726/cij.2026.1836

Clark, A., & Chalmers, D. (1998). The extended mind. *Analysis, 58*(1), 7–19.

Clarke, L. S. J., Bartel, L., & Burgué, T. A Participatory Neuroacoustic Data Infrastructure for Experimental Health Research. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 124-130. https://doi.org/10.23726/cij.2026.1837

Costa, N., Cardoso, C., & de Sousa, R. Innovation through Co-Creation in Women's Boxing: A Situated Reflection on Boundary Objects. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 38-43. https://doi.org/10.23726/cij.2026.1840

de Menezes, M., & Graca, L. Art and Immunity: Two Systems of Adaptive Knowledge. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 192-194. https://doi.org/10.23726/cij.2026.1929

Etezadi, B., & Vaidya, I. AI Usage and Disclosure: Effects on Peer Perceptions of Creativity in Multidisciplinary Teams. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 171-176. https://doi.org/10.23726/cij.2026.1853

Gelner, A. D., Stahr, J., Braun, A., & Baur, A. A Compact Screening Protocol for Human-AI Co-creation in Technical Knowledge Work. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 135-140. https://doi.org/10.23726/cij.2026.1833

Hofmann, B., & Alliss, G. Glass Art as Bridge: Towards Democratising MRI Sequence Development. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 82-91. https://doi.org/10.23726/cij.2026.1826

Lauterbach, K., Francises, W., & Hvidberg-Carriere, A. Music as Method: Experimenting with Co-Creating Music as Knowledge Production on Urban Waterscapes in Ghana. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 23-28. https://doi.org/10.23726/cij.2026.1855

McLuhan, M. (1964). *Understanding media: The extensions of man*. McGraw-Hill.

Ochiai, M. An AI Convenor for Multi-Domain Co-Creation: A Governance-Constrained Decision-Rights and Escalation Framework. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 144-150. https://doi.org/10.23726/cij.2026.1824

Quiñones-Gómez, J. C. Hybrid Human-AI Co-Creation in Design. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 164-170. https://doi.org/10.23726/cij.2026.1857

Riznyk, V. Decentralised Agentic Governance: A Methodology for Community-Owned Linguistic Datasets and Knowledge Synthesis. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 177-185. https://doi.org/10.23726/cij.2026.1829

Saienko, O., & De Paoli, S. Reconfiguring Data Power: Participatory Design with Third-Sector Organisations at the Local Level. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 29-37. https://doi.org/10.23726/cij.2026.1825

Shen, J., & Iandoli, L. Enhancing Creative Agency in Human-AI Collaboration: Story Models and Critical Prompting in Design Fiction. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 157-163. https://doi.org/10.23726/cij.2026.1851

Silver, C., Morrow, D., & De Paoli, S. Human Interpretation, AI Support: A Workflow for Thematic Analysis using Large Language Models in Co-design. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 141-143. https://doi.org/10.23726/cij.2026.1827

Suominen, A. H., & Jussila, J. Educational Hackathons as Pedagogical Systems of Co-Creation: Stakeholder Engagement for Sustainable Innovation Outputs. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 60-68. https://doi.org/10.23726/cij.2026.1838

Tanaka, Y., & Ito, T. Intersecting Art, Design, and Science Through the Universality of Japanese Aesthetics – The Design of a ‘Garden’ as an Interdisciplinary Collaboration. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 116-123. https://doi.org/10.23726/cij.2026.1831

Wnuk, M., Maryl, M., Umerle, T., & Sokolova, E. Defining, Observing, and Accelerating Innovation in SSH: The OPERAS Innovation Lab Approach to Scholarly Communication. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 52-59. https://doi.org/10.23726/cij.2026.1835

Wood, J. Languaging Co-Creation. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 6-14. https://doi.org/10.23726/cij.2026.1842

Yeff, H. Articulatory Intelligence: When Agentic Conversation Becomes Co-Creation. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 186-191. https://doi.org/10.23726/cij.2026.1858

Zampirolo, G., Rudnik, D., & Burtscher, F. Co-Creating Operational AI Governance. *CERN IdeaSquare Journal of Experimental Innovation*, *10*(2), 151-156. https://doi.org/10.23726/cij.2026.1856