The Community Studio as Score: Composing Experimental Music Infrastructures

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Figure 1: The 3D Sound Lab at TheISRO, featuring 32-channel spatial audio system built in 2017 through Felix Deufel's BangaloREsidency. (Photo: Felix Deufel)

Abstract

This paper presents the Indian Sonic Research Organisation (TheISRO) as a 20-year durational artwork treating organizational infrastructure as compositional practice. Founded in Bangalore in 2006, TheISRO explores what becomes possible when decisions about space, tools, access, and governance are approached as aesthetic choices rather than administrative necessities. The work operates through specific methods: open source logic as organizational principle (fork, modify, share, iterate), constraints engaged as compositional material rather than obstacles, ecological temporality prioritizing slow responsive growth over institutional scaling, and community treated as medium with agency rather than passive audience. This practice has generated a 32-channel spatial audio lab, extensive workshop programs, and spawned related initiatives around ambisonic microphones, experimental music interfaces, the ISSAI record label, and the Lekha.cc archival platform. Two decades of sustained practice reveals insights about knowledge production, sustainability, and situatedness that move beyond conventional research approaches. This paper examines how treating infrastructure development as artwork generates understandings of experimental music communities that academic publication cycles cannot capture, and offers provocations about what counts as research contribution, whose practices count as research, and how alternative practices might inform knowledge production.

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1 Introduction

The NIME 2026 theme asks what the conference can learn from "rich traditions of design and experimentation outside of scholarly research" and how to engage more meaningfully with "geographically and culturally-situated communities." This paper responds

by presenting a 20-year durational artwork: an experimental music organization treated as compositional practice.

In 2006, I founded the Indian Sonic Research Organisation (TheISRO) in Bangalore with a specific conceptual proposition: to explore infrastructure and systems themselves as artwork. Not as support structures for making art, but as the primary artistic practice. The organization — its physical studio, workshop programs, decision-making processes, financial strategies, community relationships, and technological infrastructure — constitutes a long-form composition exploring questions of access, constraint, temporality, and collective knowledge production.

From the start, choices about how TheISRO was organized were treated as aesthetic decisions. Minimal funding became a compositional parameter. Open source software shaped both technical infrastructure and organizational logic. The question "can an organization be modeled after a GIT project?" became the operational principle. Growth patterns followed ecological rather than economic logic.

Twenty years of sustained practice has produced a complex system that generates artistic work, instruments, techniques, communities, and related initiatives. The studio has evolved from a single room running circuit-bending workshops to a 32-channel spatial audio lab hosting international residencies. TheISRO has spawned complementary projects: ISSAI record label, Brahma Microphones, and Lekha.cc archival platform. In 2026, it transitions into a formal cooperative structure.

This approach produces knowledge differently from typical academic research and raises the following questions: Rather than building instruments, what happens when we build an instrument-building ecosystem? What counts as research? How do we recognize knowledge produced through decades of situated practice? How might compositional thinking apply to community building?

This paper examines TheISRO as artwork — its conceptual framework, compositional methods, aesthetic principles, and what this practice reveals. I write from inside the work, after years of development, at a moment of structural transition. The insights offered are inseparable from Bangalore and India's specific context but engage questions relevant to any practice at the intersection of music, technology, and community.

TheISRO isn't presented as a model to be replicated but as an example of a different approach — one that treats the usually invisible infrastructure of experimental music practice as the site of artistic investigation itself.

2 Conceptual Framework

2.1 Infrastructure as Primary Practice

To treat organizational infrastructure as artwork requires recognizing that all the supposedly administrative aspects of running an experimental music space — how decisions get made, how resources are allocated, who has access, what tools are available, how knowledge circulates — are aesthetic choices that shape what becomes possible.

This differs from artist-run spaces where infrastructure serves the work. In TheISRO's practice, infrastructure development *is* the work. The organization's evolution — its responses to constraint, its growth patterns, its decision-making processes, its technological choices — constitutes the primary artistic output.

This framing emerges from conceptual art's attention to systems and processes [12, 13], institutional critique's examination of how organizational structures shape cultural production [3, 5], experimental pedagogy's recognition that learning environments are designed experiences [9, 10, 15], and open source culture's understanding that infrastructural decisions encode values [19, 20].

2.2 Materials, Methods, and Form

The materials are organizational: people, space, tools, time, decisions, and relationships. Unlike composition with sound, these materials have agency. Participants modify the work through their engagement, making TheISRO participatory — not audience participation in a predetermined frame, but people becoming compositional agents within an evolving system.

Three primary methods characterize the practice:

Open source logic as organizational principle. Fork, modify, share, iterate — the basic operations of distributed software development — became operational methods [19]. Workshop content evolves through participant contributions like code repositories. Instruments built in the studio get modified by subsequent visitors. Knowledge circulates through documentation and replication rather than proprietary control.

Constraint-based composition. Rather than treating limitations as problems to overcome, constraints become generative parameters. Funding constraints forced circuit-bending workshops and open source infrastructure — aesthetic choices that shaped community and built resilience. When the pandemic eliminated physical gathering, constraint-based practice enabled quick adaptation.

Ecological temporality. The artwork unfolds on biological rather than institutional time. Growth happens when supporting conditions exist, not according to grant cycles. The 14 years of minimal resources before significant funding wasn't the obstacle but more a developmental stage building resilience [6, 11].

The work's aesthetic principles: **Accessibility as ongoing negotiation** (implementation changes but the principle remains constant), **Responsiveness over planning** (the work evolved through encounter rather than executing predetermined vision), **Slow transformation** (values depth over reach, sustainability over expansion), and **Generative incompletion** (the artwork generates ongoing outputs while remaining fundamentally open-ended).

TheISRO operates as a participatory, durational, generative system. This form creates specific challenges for documentation and evaluation. Success isn't measured by outputs produced but by qualities like responsiveness, sustainability, and generative capacity.

3 Key Elements of the Practice

3.1 Open Source as Compositional Logic

The Arduino microcontroller arrived from Ivrea, Italy with a specific philosophy: publish schematics, encourage modification, build on others' work, share improvements back [1]. Hardware such as these became the backbone of technical infrastructure and research. Knowledge circulates through modification. A circuit-bending workshop [4] in 2016 led to participants bringing their own broken electronics, which led to a participant developing their own workshop format, which became regular programming. The workshop evolved like software: forked, improved, contributed back. From these iterative processes emerged specific instruments: modified samplers built from children's toys, contact microphone systems constructed from piezo elements and discarded hardware, and Arduino-based controllers that participants later adapted for their own performances.

This logic extends through TheISRO's ecosystem. Umashankar Manthravadi's Brahma Microphones publishes complete construction manuals for its first and second-order microphones with "anyone can build this mic." Lekha.cc, the archival platform developed from TheISRO's need to document its practice, operates entirely open source and free. ISSAI record label releases music prioritizing artist freedom over commercial viability.

This produces a specific aesthetic: knowledge becomes commons requiring cultivation rather than property requiring protection. There's no single author claiming credit, no intellectual property to protect. Instead: accumulated, modified, distributed knowledge accessible to anyone willing to engage.

3.2 Constraints as Material

The absence of resources directly shaped what became possible and who participated.

Circuit-bending workshops emerged because we couldn't afford synthesizers. This became aesthetic choice — discarded electronics transformed into instruments democratized access. The constraint generated the method, which attracted specific community, which built particular knowledge.

Small scale enabled decision-making by whim. Someone proposes workshop, we check interest, it happens. This responsiveness was only possible because overhead was zero. The constraint generated the method, which created specific character: nimble, experimental, personal.

This approach treats constraints generatively. Each limitation becomes compositional material to engage. The resulting work carries traces of its constraints — accessible, resourceful, adaptive — as aesthetic qualities.

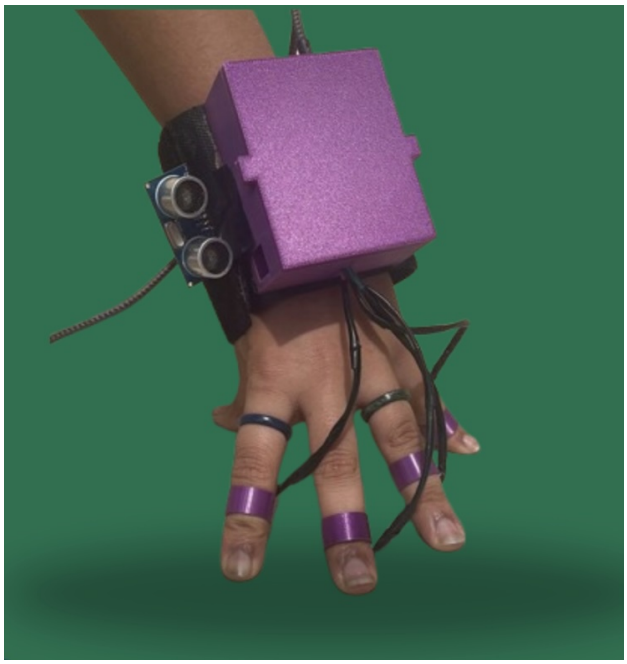

Figure 2: An example of an interface built by workshop participants at a 2025 workshop on building experimental music interfaces. (Photo: Srikalyani Adkoli,Roshni Vittal)

3.3 Slow Growth as Temporal Form

TheISRO's development follows ecological time. The 3D Sound Lab's 32-channel spatial audio system wasn't built in year one or year ten. It emerged in 2017, eleven years into practice, when multiple conditions aligned: Felix Deufel brought expertise, Goethe Institut provided residency support, Umashankar Manthravadi contributed microphone knowledge, and TheISRO had a community that could use such infrastructure meaningfully.

In contrast, with typical institutional logic, one would write a grant, receive funding, build facility, recruit users. TheISRO reversed the sequence: build community, develop knowledge, create demand, then when infrastructure opportunity arises, it finds prepared ground.

The residency program followed a similar pattern. Informal hosting happened years before formalizing into a structured program with four annual residencies plus specialized programs like SINEMS. This took over a decade to develop.

The work operates at scales from daily (studio access) to decades (20-year arc). Each scale interacts. A single workshop might plant seeds germinating years later. The long arc makes short-term experiments possible because there's time for outcomes to emerge.

The aesthetic of slow growth produces work that looks small by conventional metrics but achieves depth of engagement and accumulated knowledge over decades. Saying no to growth opportunities is a compositional choice, prioritizing sustainability over expansion.

The transition to cooperative structure in 2026 exemplifies this approach. After years, formalizing governance becomes necessary and appropriate — not as founding principle but as response to evolved complexity.

3.4 Community as Medium

People aren't audience — they're the medium through which the work manifests. But the medium has agency and volition.

Early participants were predominantly art students drawn to hands-on experimental approaches. They shaped what became possible. When participants brought stronger technical backgrounds, workshops evolved toward embedded systems. When participants wanted more conceptual framing, process-based workshops emerged. The artwork composed itself through encounters.

Residents bring their own practices, temporarily becoming part of TheISRO's ecosystem. Each residency introduces different artistic logic that interacts with infrastructure and community. Some leave traces: new equipment, modified techniques. Others pass through with lighter touch.

TheISRO is inseparable from Bangalore's experimental arts ecosystem (Experimenta, Bar 1, JAAGA, Maraa, 1 Shanti Road). Simultaneously, international connections through residencies mean operation is both deeply local and thoroughly global. Arduino from Italy, Pure Data [18] from distributed development, circuit-bending from global DIY culture — all practiced in Bangalore with local participants.

Working with people as medium creates fundamental unpredictability. I cannot control outcomes because participants modify the work through engagement. This produces generative quality but means the work exceeds authorial intention. Some of TheISRO's most significant developments came from participant initiatives: Brahma Microphones, various workshop formats, collaborative projects.

Figure 3: Workshop participants from a 2006 Circuit bending workshop (Photo:Yashas Shetty)

TheISRO's Radio Quarantine — a nightly broadcast series during the pandemic — demonstrated this clearly. Nightly broadcasts brought together regulars and international listeners. People requested music, shared experiences, proposed guests. The show composed itself through interactions while maintaining coherent aesthetic sensibility.

4 Manifestations

4.1 The Studio as Evolving Score

The physical studio functions as both notation and instrument. Its current configuration — 32-channel spatial audio system, prototyping workshop with CNC machines and 3D printers, collection of custom instruments, video synthesis equipment — represents accumulated compositional choices over years.

Each element entered through a specific decision process. The 3D Sound Lab (2017) came through Felix Deufel's BangaloREsidency. Prototyping equipment enables rapid instrument development. Wolfgang Spahn and Ron Schneider's instruments, Otso Sorvetulla and Shreyasi Kar's video synthesizers — each represents a residency that left physical trace.

Studio configuration composes possibilities. The 32-channel speaker array enables spatial audio composition impossible in stereo, but its presence also influences non-spatial work because it's available, suggesting possibilities. Physical infrastructure carries history — circuit-bent devices from early workshops share space with sophisticated spatial audio processors.

4.2 Workshops and Spawned Initiatives

Each workshop series performs TheISRO's organizational system. The progression from circuit-bending (2006–2016) through embedded systems (2010s) to current spatial audio workshops (2020s) traces community capacity development.

"Music from Code" (2018) exemplifies how workshop content emerges from intersection of community interest, tools, and conceptual framework. Workshop formats evolved through participant contributions. The series operates as a distributed curriculum, collectively authored over time.

TheISRO's ecosystem structure — spawning related but semi-independent projects — extends the artwork into new domains. Brahma Microphones translates open source hardware philosophy into commercial manufacturing, publishing construction manuals and supporting right to repair. ISSAI record label releases experimental music prioritizing artist freedom. Lekha.cc emerged from practical need to document 20 years accessibly, now used by artists globally.

These initiatives demonstrate a compositional principle: instead of single organization growing infinitely, spawn related projects that remain human-scale while sharing values. The network provides reach and resources while individual nodes maintain responsiveness.

4.3 Emergent Contributions

Integration of spatial audio with accessible pedagogy created pathways for practitioners without institutional access. The 3D Sound Lab hosts workshops demystifying spatial audio production, treating it as extension of stereo techniques rather than specialized domain requiring expensive equipment.

The Radio Quarantine format — nightly thematic broadcasts mixing curated music, listener requests, and conversations — demonstrated sustainable community building during crisis. While no longer active, it influenced how other collectives approached pandemic programming.

The 2026 shift to formal cooperative structure represents significant compositional choice about organizational form. After 20 years of informal governance, codifying democratic decision-making makes explicit what was implicit: collective ownership and shared responsibility. Whether this preserves informal creativity while managing complexity remains open question — an experiment whose outcomes will emerge through practice.

5 What This Practice Reveals

5.1 Knowledge Production Beyond Publication

TheISRO demonstrates that knowledge production happens outside academic publication cycles. Accumulated expertise in accessible spatial audio pedagogy, constraint-based instrument building, or sustainable alternative infrastructure developed through iterative practice, community exchange, and responsive adaptation.

TheISRO was conceived from the outset as artwork, drawing from conceptual art's attention to systems and process [5, 12], institutional critique's examination of organizational structures [3], and Indian traditions of collective practice exemplified in cooperative movements like Amul and Gandhian models of cooperation and community. Decisions about funding, governance, tools, and access were made as compositional choices from the beginning, not administrative necessities later reframed as art. This knowledge takes forms resisting traditional documentation [7, 17] — situated, embodied, and distributed knowledge valuable precisely because it doesn't fit academic formats, operating through durational practice, situated engagement, and constraint-based methods that embody different epistemologies.

5.2 Temporality and Sustainability

The slow growth aesthetic reveals that organizations growing too quickly relative to adaptive capacity often collapse [6, 11]. TheISRO's 14 years of minimal resources built resilience. When crisis hit or opportunities arose, this accumulated resilience enabled response.

Conventional logic measures success through growth metrics: more funding, larger facilities, wider reach. TheISRO's practice suggests alternative criteria: responsiveness (can we adapt?), depth (how nuanced is our understanding?), generativity (do we enable new possibilities?), and sustainability (can we maintain practice meaningfully over time?).

The durational form reveals that valuable outcomes emerge across decades. The cooperative transition makes sense in 2026 in ways it wouldn't earlier. Spawned initiatives emerged when conditions supported them, not according to strategic plan. Ecological temporality produces different outcomes than institutional or commercial temporality.

5.3 Infrastructure as Epistemology

Treating infrastructure as artistic practice reveals that infrastructural choices encode epistemological commitments [2, 21]. Choosing open source isn't a neutral technical decision — it's a commitment to transparency and modification as values. Structuring workshops for beginner accessibility while maintaining experimental rigor reflects a belief that experimental practice shouldn't require institutional credentials.

Open source organizational logic demonstrates knowledge circulation operating differently than academic publishing. Fork, modify, share, iterate — these operations produce distributed authorship where contributions accumulate rather than being attributed to individuals. This reveals that research contribution can be measured by generative capacity: does the work enable others to develop their own practice?

5.4 Situatedness and Evaluation

TheISRO's deep embeddedness in Bangalore context isn't limitation but what makes the work valuable. The practice reveals that all experimental music work is situated, even when claiming universality [7, 8]. Designing instruments in well-funded universities reflects those contexts just as surely as TheISRO reflects Bangalore. The difference is whether situatedness is acknowledged explicitly or treated as invisible default.

Engaging situatedness explicitly creates different knowledge. TheISRO's responses to Bangalore's transformation, navigation of postcolonial dynamics around "Indian experimental music," integration with local arts ecosystem — these are inseparable from the work's development.

The practice reveals that conventional evaluation — citation counts, publication venues, grant funding — misses what makes communities of practice valuable. The artistic framing suggests different questions: Does the work maintain integrity over time? Does it generate possibilities for others? Does it respond thoughtfully to context? Has it sustained meaningful practice across decades?

5.5 Constraints Reconsidered

Perhaps most significantly, the practice reveals that constraints can be engaged as compositional material. This isn't romanticizing poverty but recognizing that working with what's available — broken electronics, free software, small spaces, minimal funding — can generate approaches that abundance might bypass.

The accessibility, resourcefulness, and adaptive capacity characterizing TheISRO's work emerged directly from constraint engagement. Organizations starting with abundant resources rarely develop these qualities because they don't need to. This suggests well-funded research might be constrained by its abundance — limited to approaches expensive infrastructure enables while missing what constraint-based practice discovers.

6 Implications for NIME

The NIME 2026 theme asks what the conference can learn from communities outside scholarly research [16]. TheISRO's work offers a few provocations:

What counts as research contribution? Sustaining a community studio across two decades, navigating funding constraints, building ecosystems of practice — this generates genuine knowledge about experimental music. It shapes what practitioners can do and who can participate, yet it rarely appears in publications. NIME already makes space for this in small ways: practice-based submissions, artist talks, community workshops at the conference. The question is whether these remain supplementary to "real" research or become genuinely valued contributions on their own terms.

What temporal scales matter? NIME operates on annual cycles; TheISRO's most significant insights emerged across decades. Some knowledge only becomes visible at long range — what works, what fails, what a community actually sustains over time. Could we create space for reflective accounts from long-duration practices, evaluated not on novelty but on depth of accumulated understanding?

Whose knowledge circulates? NIME's publication record documents a community largely producing instruments within academic research contexts [14]. Significant experimental music practice happens elsewhere, in community studios and alternative spaces with minimal funding. These aren't preliminary versions of "real" research — they're different epistemologies. How might we engage these practices without requiring them to adopt academic formats that change their character in the process?

What does situatedness reveal? TheISRO's insights are inseparable from Bangalore — its economics, its arts ecosystem, its postcolonial dynamics around what counts as "Indian experimental music." This situatedness isn't a limitation to apologise for; it's what makes the knowledge specific and trustworthy. All instrument design work is equally situated, even when it doesn't say so. Making this explicit changes what counts as contribution: not generalizable principles extracted from context, but situated experiments that honestly report both what became possible and what didn't.

How do constraints shape practice? Many experimental music communities globally work under resource limitations far beyond well-funded institutions. Circuit-bending emerged here because synthesizers were unaffordable; open source infrastructure because proprietary tools were inaccessible; cooperative governance because there was no institutional safety net. Rather than treating this as deficit, what can NIME learn from practices that have developed sophisticated approaches by engaging limitations generatively? Accessible techniques, repurposed materials, slow sustainable growth — these aren't compromises. They're methods with their own rigour.

What infrastructures enable what practices? TheISRO developed under conditions typical of many Global South contexts: unreliable funding, limited access to commercial equipment, distance from the institutional networks where experimental music technology is usually produced. These constraints

generated specific infrastructural responses — open source hardware, circuit-bending pedagogy, cooperative governance, slow ecological growth. The question worth asking is not just whether these are valid despite their context, but whether they enable kinds of work that well-resourced infrastructures actively prevent. Abundance has its own constraints: expensive equipment creates dependencies, institutional funding creates accountability to funders rather than communities, scale creates overhead that crowds out experimentation. Infrastructures built under scarcity often produce different aesthetic and epistemic commitments — accessibility, adaptability, collective ownership — that aren't simply compensations for lack but genuine alternatives. What might NIME learn from treating Global South infrastructures not as underdeveloped versions of a universal model, but as distinct compositional systems producing knowledge that better-resourced contexts cannot easily generate?

These questions aren't a critique of what NIME has built — they're an invitation to recognise what the conference stands to gain. Communities like TheISRO in India, Lifepatch and HONF in Indonesia have been developing approaches and knowledge for decades that academic frameworks haven't produced, and may not be able to: constraint-based methods forged from necessity, infrastructures built for sustainability rather than scale, epistemologies shaped by contexts far outside the institutional mainstream. The second step might be curiosity — attending carefully to what becomes visible when evaluation criteria shift, when longevity counts as much as novelty, when situatedness is acknowledged rather than erased. And the third might be willingness: to change not just who gets invited in, but the terms of the invitation itself.

7 Ethical Standards

This paper presents reflective practice research conducted by the founder of TheISRO. The work described involves community participants, workshop attendees, and residents who engaged with TheISRO voluntarily over a 20-year period. No formal experimental protocols were applied; the paper reflects on organisational and artistic decisions made as part of ongoing practice. Insights were generated through sustained participant observation as founder-practitioner, ongoing documentation of organisational decisions and community interactions, and reflective synthesis identifying patterns across two decades of development. Community documentation practices at TheISRO follow norms appropriate to its Indian context, where relationships between practitioners, participants, and organisers are governed by ongoing community trust rather than formal institutional protocols. Photo and audio documentation was conducted within these community norms over the course of a sustained 20-year practice.

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