Heritage-centred Design: A Methodology for Community-Authored Knowledge Infrastructure in Creative Cities

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Abstract

This paper reports on a methodology developed through field practice in the UNESCO Creative Cities Network (UCCN): an approach in which the material knowledge, economic circumstances, and cultural authorship rights of living craft and gastronomic communities constitute the governing constraints of every design decision — from the user interface of a documentation tool to the governance architecture of a cluster-level digital platform. The methodology, which the paper terms heritage-centred design, is operationalized through a four-step framework — territory mapping, heri-telling, gamified engagement, and structured digital implementation — and demonstrated across four case studies spanning the C&FA and Gastronomy clusters: the C&FA digital hub (craftsfolkart.org); a gastronomic heritage documentation project across the Arabian Peninsula; the Bergamo Cheese Valleys project (two completed editions); and an architectural restoration project in Latin America. A five-dimension impact framework confirms measurable outcomes across social, economic, digital, educational, and institutional dimensions. The paper examines the design dimensions of this field practice and the questions it raises for knowledge infrastructure design wherever living cultural knowledge intersects with digital systems, governance accountability, and community livelihood.

Keywords: Heritage-centred Design, Community Authorship, Intangible Cultural Heritage, AI-assisted Transcription, Knowledge Infrastructure Design, UNESCO Creative Cities Network (UCCN)

Introduction

Design constitutes a distinct epistemological mode — neither science nor art — with its own problem-solving logic and its own standards of evidence (Cross, 2006). What distinguishes design from technical specifications and policy declaration is this: proposed solutions are judged not by formal proof but by their fit with the conditions that generated them and the quality of the human experiences that they enable. This epistemological character makes design particularly well-suited to a class of problems that resist resolution through declaration alone: the design of infrastructure for living knowledge.

Living knowledge — the tacit, embodied expertise held by craft practitioners, traditional food producers, and heritage communities — presents design with a challenge

that user-centred, participatory, and co-design approaches have only partially addressed. Each tradition has moved the designer closer to the communities they design for, but none, as conventionally practiced, makes the community the author: the primary agent who determines not only what is documented but how it is represented, certified, and economically activated.

The methodology described in this paper was not derived from design theory; it emerged from the practical demands of implementing heritage documentation infrastructure in UCCN cities across diverse cultural and institutional contexts. This paper reports on that practice from a practitioner research perspective, situates it within the design traditions that most closely engage with its concerns, and draws out implications for design thinking. We term this approach heritage-centred design.

Section 1 situates the practice within design methodology traditions. Section 2 diagnoses the structural conditions in which it operates. Section 3 describes the four-step framework through which it is implemented. Section 4 presents four case studies. Section 5 evaluates impact. Section 6 discusses implications and the conclusions will be made at the end.

1. Situating Heritage-Centred Design

1.1 In Relation to Existing Design Traditions

The tradition of design for social innovation (Manzini, 2015) has established that expert design practice can serve community-generated social innovations by building enabling conditions rather than imposing solutions. The practice described here operates in this mode: it builds documentation and platform infrastructure that makes community knowledge legible and economically activated, without determining what that knowledge should be or how it should be used.

Design justice (Costanza-Chock, 2020) argues that design must not merely include marginalized communities but be led by them, challenging the universalist assumptions embedded in mainstream practice. Escobar's (2018) autonomous design framework further argues that the design's world-making capacity must be channeled toward ways of being attuned to specific places and communities. This practice is, in Escobar's terms, a place-based practice: its outputs are locally grounded archives, itineraries, and economic pathways whose value is inseparable from the community and territory that produced them.

Participatory design and co-design (Sanders & Stappers, 2008) advance genuine community involvement but remain, in their standard formulations, practices in which communities participate in or co-create with designers. The practice described here goes further: communities are the authors of the knowledge the design system exists to serve. The designer's role is to build infrastructure that makes authorship possible, legible, and economically activated — not to co-create the knowledge itself.

1.2 Four Characterizing Principles

Four principles, emergent from the implementation rather than being derived from theory, characterize this practice, thus distinguishing it from adjacent approaches:

• Authorship primacy: The community is the author, not only the user, participant, or co-creator. The design system exists to serve community authorship, not only to incorporate it as an input.

• Constraint-based governance: Community knowledge, economic circumstances, and cultural rights are design constraints, not design requirements. They precede and govern every decision rather than being balanced against other requirements.

• Activation by design: The outputs are market credentials, tourism assets, and policy evidence instruments — not museum records. Documentation and economic activation are designed as a single integrated process.

• Transferable principles, non-transferable outputs: The four governing principles are transferable across creative clusters and cultural contexts; the outputs are not — they are place-specific by design.

These principles reflect a specific response to the most enduring failure mode in heritage documentation: the extraction model, in which institutions enter communities, document practices for institutional purposes, and leave with outputs that serve their own agendas while practitioners retain neither authorship nor economic benefit (Ghaddar & Caswell, 2019). In this practice, extraction is made architecturally impossible by embedding practitioner editorial control and practitioner-centred data governance into every tool and platform as non-negotiable conditions.

2. The Structural Challenge

2.1 The Stakes of Living Knowledge Loss

Traditional practices encode millennia of accumulated problem-solving in materials, techniques, ecological knowledge, and cultural meaning — what UNESCO terms Traditional Knowledge (TK): integrated systems of practice developed in direct relationship with territories and social structures (UNESCO, 2003). The loss of such knowledge is simultaneously cultural and economic: craft production supports hundreds of millions of livelihoods globally, with women and rural communities disproportionately represented (Brogan & Dooley, 2024; Dhar, 2025). Within the UCCN, cluster declarations — Paducah (2013), San Cristóbal de Las Casas (2018), Carrara (2021) — are normative without being operational: they articulate commitments but provide no shared infrastructure for evidencing whether those commitments are met. This is not a policy failure alone. It is a design failure.

2.2 Three Structural Deficits

Three deficits recur across implementation contexts, defining the design challenge this practice addresses:

• Digital invisibility: Knowledge Keepers lack certified digital profiles that make them discoverable by buyers, researchers, cultural tourists, and institutional partners. Without verified digital identity, the economic potential of traditional knowledge remains invisible to the institutions whose mandate is to support it.

• Intermediary dependency: In the absence of direct market access, craft/food producers depend on intermediaries who capture the preponderance of economic value while practitioners remain precarious.

• Trained workforce deficit: Sustained documentation requires people with methodological skills and digital fluency (Knowledge Seekers). Most UCCN cities have no such workforce and no structured pathway for developing one — a deficit particularly acute in candidacy processes, where cities are expected to demonstrate their commitment is that they do not yet have the human capital to document.

3. The Four-Step Implementation Framework

3.1 Research Approach and Evidence Base

This paper is practitioner research: it reports on field practice from the position of the organization that designed and implemented it, rather than from external empirical observation. This positioning carries a specific epistemological consequence that the paper holds throughout: claims about the practice's design principles and operational logic are made with the confidence of direct implementation experience, while claims about outcomes and effectiveness are presented as findings from ongoing practice rather than as conclusions independently verified through controlled study. Limitations of the evidence will be presented at the discussion section.

The field practice is operationalized through four steps that function as a continuous cycle: each generates outputs that feed directly into the next, and the whole produces evidence at governance scale. Each step makes extraction structurally more difficult by progressively deepening community authorship and institutional accountability.

Step 1: Territory Mapping and Knowledge Keeper Identification

Every implementation begins in the field, mapping the full creative value chain of a territory — from raw material gatherers to transformers, producers, and distributors — and formally engaging its Knowledge Keepers. This mapping is a design act: it produces a spatial understanding of creative knowledge that connects practitioners to places, materials, and each other in ways that generalized databases cannot capture. It establishes the specific relational ecology — in Escobar's (2018) terms — within which the archive will be built.

Step 2: Heri-Telling and AI-Assisted Field Recording

Trained Knowledge Seekers conduct field interviews using AI-assisted recording tools that capture interviews in the practitioner's mother tongue and apply integrated transcription, narrative structuring, translation, and data field population — generating a draft profile the practitioner reviews and authorizes before platform submission. The heri-telling approach treats traditions as evolving practices: it captures the practitioner's relationship to materials, teachers, markets, and community, not merely technical specification. The practitioner's narrative, not the institution's taxonomy, governs what is documented and how. The AI-assisted recording tool operates as a linguistic equity instrument, removing the language barrier at the point of documentation. It is currently under active testing; its genesis and status will be discussed.

Step 3: Gamified Documentation and Intergenerational Transmission

Gamification systems (Deterding et al., 2011) transform heritage documentation from a passive exercise into an active, socially rewarded community practice. Knowledge Seekers earn points by completing documentation challenges co-designed with community cultural experts; leaderboards, badges, and public recognition events elevate the social status of both the documentarian Knowledge Seeker and the Knowledge Keeper they work with. Challenges require repeated in-person engagement with specific Knowledge Keepers —

generating the sustained intergenerational relationships through which tacit knowledge transmission occurs organically. Gamification is designed to produce encounters, not just content.

Step 4: Digital Implementation: The Creative Knowledge Platform

All content passes through a four-phase approval process before publication on the Creative Knowledge Platform (CKP): (1) field recording and AI-assisted transcription; (2) editorial review for quality, cultural accuracy, and credibility; (3) institutional validation; (4) automated publication of validated content. No content is published without practitioner verification at Step 1 and institutional validation at Step 3 — a non-negotiable governance condition. Once live, CKP generates a permanent searchable multimedia archive, QR codes allowing each Knowledge Keeper to link his/her profile to market channels, bilingual publications, geo-tagged cultural itineraries, and real-time engagement analytics.

4. Case Studies

Four case studies were selected to demonstrate the practice across three dimensions of variation rather than as a convenience sample of available projects. The first dimension is creative cluster: the cases span both the Crafts and Folk-Art cluster (Case Study A) and the Gastronomy cluster (Case Studies B and C), testing whether the same governing principles hold across different forms of living knowledge. The second is implementation maturity: the cases range from fully completed and published work (Bergamo, two editions; Bread Between Us, one completed edition) to active deployment (the Sukhothai Level 2 to Level 3 transition) and proposed extension (the Latin American restoration case), allowing the paper to distinguish established findings from forward-looking claims throughout. The third is geographic and linguistic range: West Africa, Southern Europe, Southeast Asia, the Arabian Peninsula, and Latin America, each presenting distinct institutional and linguistic conditions for the practice to operate within**.**

4.1 Case Study A: The C&FA Cluster Digital Hub

The Crafts and Folk-Art Cluster Website (craftsfolkart.org) was conceived as a dedicated digital hub for visibility, cooperation, and knowledge exchange among all UNESCO Creative Cities of Crafts and Folk Art. As a design artefact, it is the most structurally significant application of this practice at network scale: a platform designed from the outset to produce outputs in comparable, standardized formats across multiple cities simultaneously, generating the cross-city evidence base that UCCN governance has historically lacked. The platform operates on a three-tier model allowing cities to engage at a level commensurate with their capacity: City Brief (basic verified profile), City Promotion (full multimedia city page), and City and Creativity Promotion (full Creative Knowledge Platform integration with certified Knowledge Keeper profiles).

Bida, Nigeria — UNESCO Creative City of Crafts and Folk Art (2021)
Bida, capital of Niger State, is home to one of West Africa's oldest and most diverse craft traditions, encompassing brass casting, glassmaking, weaving, beadwork, and woodcarving. Its integration on craftsfolkart.org/Bida represents the first systematically certified digital documentation of its craft Knowledge Keepers — master artisans previously invisible to national and international markets and entirely dependent on intermediaries for market access. The Bida implementation produced a slower timeline than comparable European contexts — a design finding, not a failure: the linguistic complexity of a multi-register, low-

resource documentation context is directly relevant to the AI-assisted transcription testing agenda discussed in Section 6.

Carrara, Italy — UNESCO Creative City of Crafts and Folk Art (2017)
Carrara's marble tradition represents one of the world's most significant stone-working legacies. The platform integration (craftsfolkart.org/carrara), developed through the Hands at Work project (Biagini, 2017), documented the full creative value chain from quarry to workshop through nine video portraits of local artists and artisans, one cultural itinerary, and individual Knowledge Keeper profiles — contributing to the institutional context in which the Declaration of Carrara (2021) on the Role of Artists and Artisans was elaborated. The same documentation protocol that serves a brass caster in Bida serves a sculptor in Carrara: the commitment to community authorship holds regardless of the practitioner's international recognition.

Sukhothai, Thailand — UNESCO Creative City of Crafts and Folk Art (2019)
Sukhothai's integration at Level 2 (City Promotion) on craftsfolkart.org illustrates a distinct implementation challenge: the transition between platform levels. The city holds exceptional heritage credentials — a UNESCO World Cultural Heritage Site, Memory of the World designation, and Learning City recognition — and its craft traditions in celadon ceramics, weaving, and gold and silver jewelry are among the most celebrated in Southeast Asia. Progression to Level 3 has been constrained by the linguistic gap between Thai craft-specific registers and the documentation standards the platform requires. Sukhothai is among the first cities identified for Level 3 integration as the AI-assisted transcription tool matures — illustrating a central finding of this practice: the barrier to community participation is not capacity but tool design.

4.2 Case Study B: Bread Between Us (بيناتنا خبز), Arabian Peninsula

Bread Between Us — بيناتنا خبز (breadbetweenus.org; Biagini et al., 2025) applies the four-step framework across seven Saudi cities — Al-Ahsa, Buraydah, Riyadh, Jeddah, Jazan, Madinah, and Taif — and their distinct Arabic dialect registers: the most linguistically complex implementation to date. Conceived as an "archeology of memory," the project documents the oral traditions, proverbs, and tacit knowledge attached to breadmaking practices along the Peninsula's pilgrimage routes and caravan networks. Knowledge Keepers — traditional bakers, millers, and farmers — were identified according to the authorship primacy principle across all seven cities. The Creative Knowledge Platform deploys English profiles, geo-tagged Bread Routes, and QR codes embedded in the companion book. The project also generated the field evidence that drove development of the AI-assisted multilingual transcription tool: conventional bilingual workflows proved insufficient across seven Arabic dialect registers — the full account is in the discussion.

Expansion: The Silk Roads of Bread

The completion of the KSA edition opens a replication trajectory not bound by cluster designation or geography. The three Silk Roads — land, maritime, and desert — define the natural expansion framework: ancient commercial corridors along which bread knowledge moved with grain, spice, and culture for millennia, connecting the Arabian Peninsula through Persia and Central Asia to China, through the Indian Ocean to Southeast Asia, and through the Sahara to West and sub-Saharan Africa.

The wider ambition is to apply the territory mapping methodology along all three routes — not only to extend documentation to known communities, but to discover communities outside existing cultural governance frameworks whose bread heritage has never been formally evidenced and who may represent future UCCN candidates. Bread, in this framework, is not a theme but a signal: the living trace of routes that once connected the world and may again connect the cities that inherit them.

4.3 Case Study C: Cheese Valleys, Bergamo, Italy
(UNESCO Creative City of Gastronomy)

The Bergamo Cheese Valleys project is the most iteratively evidenced implementation in this paper, with two completed and published cycles (2021; 2025) applied to the same territory across four years. Where the preceding case studies demonstrate geographic and linguistic range, Bergamo demonstrates the practice's capacity for successive deepening: each documentation cycle expanding the evidence base in ways a single cycle cannot achieve. The territory is the cheesemaking heritage of the Orobic Alps — spanning the provinces of Bergamo, Brescia, Lecco, and Sondrio — whose communities of bergamini herders and artisan producers hold tacit knowledge of exceptional depth: from the seasonal rhythms of transhumance to the double-curd technique essential to Strachitunt, one of the Alps' oldest protected designation cheeses.

The Bergamo implementation does not operate in isolation. The 2019 UCCN designation catalyzed a coordinated ecosystem of territorial initiatives — including the B2Cheese international business-to-business dairy trade fair, an annual International Summit of Creative Cities, the formal establishment of the Bergamo Valleys and Lakes Food District (November 2023), and Bergamo's designation as Italian Capital of Culture 2023. The measurable territorial outcomes documented across this period confirm the alpine valleys as a growing cultural tourism destination: international visitor presences in the Val Brembana grew by 81% between 2019 and 2024, and by 91% in the Valseriana and Val di Scalve (Provincia di Bergamo / VisitBergamo, 2024). Agri-food exports from the Bergamo territory grew from approximately €1.02 billion in 2019 to €1.646 billion in 2025 (Camera di Commercio di Bergamo, 2025). These outcomes reflect a convergent ecosystem of territorial actions — of which the Cheese Valleys documentation project is the knowledge infrastructure component — rather than any single intervention. The project's contribution is to make the tacit expertise of its producers legible, certifiable, and economically activatable within this broader territorial development strategy.

Two Editions: Depth, Then Full Territorial Coverage

The first edition (Biagini et al., 2021) applied the full four-step framework to nineteen Knowledge Keepers — master cheesemakers, bergamini herders, and artisan producers — mapped across the creative value chain from pasture to market. The heri-telling protocol captured each practitioner's living relationship to materials, community, and seasonal practice rather than technical specification alone. The Creative Knowledge Platform produced bilingual Italian-English profiles, QR codes linking each to direct market channels, and geo-tagged itineraries connecting visitors to dairies and alpine production sites. The formal institutional outcome — designation of each Knowledge Keeper as an Ambassador of Orobic Gastronomic Knowledge — is the clearest example of activation by design in this paper: documentation converted into a durable economic and institutional credential. The second edition (Biagini et al., 2025) responded to a specific territorial design

requirement: nineteen Knowledge Keepers could not fully represent the diversity of the Orobic Valley cheesemaking ecosystem. Edition 2 expanded coverage to all artisanal cheeses across the full Orobic territory, transforming the curated living archive into a living infrastructure.

Proposed Evolution: Gamified Knowledge Transmission

The two-edition infrastructure creates the conditions for the next implementation cycle, in which CKF's gamification methodology would engage students from local agricultural and hospitality schools as active Knowledge Seekers — visiting dairies, completing structured documentation challenges co-designed with community partners, and contributing to the dynamic territorial map. This is the natural implementation of Step 3 in a context where Step 4's digital infrastructure has already been established and validated. It is presented as a projected continuation, not as current evidence.

4.4 Case Study D: Restoration Practices, Latin American UNESCO Creative City

This proposed deployment — developed in collaboration with a UNESCO Creative City in Latin America, anonymized at this stage — extends the practice into the domain most directly relevant to the architectural and design readership of this journal: the documentation and economic activation of living restoration expertise in stone, textile, and wood.

A restoration practitioner whose knowledge of historic lime-mortar formulations is essential to maintaining a UNESCO World Heritage site is, for the purposes of this practice, a Knowledge Keeper in precisely the same sense as a weaver or a cheesemaker. Their expertise constitutes a form of architectural intelligence: an understanding of the behavior of specific local materials under specific environmental conditions, of the properties of traditional binding agents, and of the sequences and tools required to achieve structural and aesthetic outcomes that industrial methods cannot replicate — tacit knowledge (Miton & DeDeo, 2022) that resides in hands, in eyes, and in accumulated experience over generations.

When restoration practitioners are certified through the Knowledge Keeper framework, their expertise becomes legible to architectural firms, conservation agencies, and heritage funding bodies in ways that informal recognition cannot achieve. The five-dimension impact framework generates a validated evidence base for advocacy toward the formal recognition of stone, textile, and wood restoration practitioners as cultural industry professionals — connecting them to funding streams, social protection mechanisms, and accreditation pathways currently unavailable to them. Documentation, in this case, is not preliminary to advocacy: it is the advocacy instrument itself.

The four case studies collectively demonstrate the scalability of this practice across creative clusters, geographic contexts, and implementation stages. The governing principles that structure a Knowledge Keeper profile for a brass caster in Bida translate directly to a mountain cheesemaker in the Orobic Alps, a restoration practitioner in Latin America, a celadon ceramicist in Sukhothai, or a nomadic baker in the Arabian Peninsula. The practice is domain-agnostic; its operational logic holds wherever living knowledge, community authorship, and digital infrastructure intersect.

5. Evaluating Impact: A Five-dimension Framework

The following five-dimension framework is applied from project inception — not retrospectively — through the integrated real-time data generation of the Creative Knowledge Platform and its gamification system. Real-time, disaggregated evidence generation prevents retrospective reframing and creates continuous accountability between the practice and the communities it serves.

Social Impact: Community cohesion, gender empowerment, and intergenerational bonds. Key indicators: proportion of Knowledge Keepers from underrepresented groups; share of female Knowledge Keepers; rural or peripheral communities reached; frequency of intergenerational exchange sessions. The systematic focus on women practitioners, informal workers, and rural communities corrects the structural marginalizations that conventional documentation perpetuates.

Economic Impact: Contribution to creative economies and practitioner livelihoods, aligned with SDG 8. Documented heritage becomes an economic asset — certifiable, licensable, and marketable. Key indicators: verified Knowledge Keeper profiles; QR-code engagement rates; cultural tourism itineraries activated; direct marketplace connections between practitioners and buyers. Economic activation is not an addendum; it is the practice's most durable guarantee.

In the Bergamo Gastronomy context, territorial-scale economic indicators — while attributable to a convergent set of UCCN-aligned initiatives rather than to any single project — provide the order-of-magnitude evidence of direction: provincial agri-food exports and international tourist presences in the Orobic valleys increased significantly. These figures do not constitute project-level attribution; they constitute ecosystem-level confirmation that documentation, trade infrastructure, vocational training, and cultural designation, when designed as convergent components of a territorial strategy, generate measurable economic direction.

Digital Impact: Quality of digital preservation and technological reach across implementation contexts. The platform's four-phase approval process ensures every archived content item is linguistically complete, culturally accurate, multilingual, and institutionally validated. Key indicators: multimedia assets archived per project; AI validation accuracy rates disaggregated by language context; platform engagement metrics.

Educational Impact: Effectiveness of knowledge transfer and development of a trained local documentation workforce, contributing to SDG 4. Key indicators: Knowledge Seekers trained per project; youth heritage ambassadors certified; gamification completion rates by demographic cohort. The most important output of any implementation is not the archive it produces but the local workforce it trains to continue independently.

Institutional Impact: Alignment with governance standards, contribution to cultural policy, and replicability, contributing to SDG 11. Key indicators: UNESCO Creative Cities engaged; international declarations co-authored; formal institutional partnerships established; instances cited in cultural policy processes. Projects designed for policy advocacy must demonstrate that the advocacy has influenced decision-making.

6. Discussion: Implications for Design Thinking and Practice

6.1 Three Assumptions the Field Evidence Questions

Field implementation across the case studies raises questions about three assumptions that have structured documentation practice since the nineteenth century.

The first is the assumption of institutional authority: that documentation is legitimately led by museums, universities, and government agencies, with communities as data sources rather than knowledge authors. This practice inverts the relationship by design — giving practitioners editorial control over their own profiles before publication and embedding practitioner-centered data governance into the platform architecture as a non-negotiable condition rather than an optional feature. The consequence is practical: the documentation tool must be built around the community's own ways of speaking about their practice — their language, their vocabulary, their narrative conventions — not around the institution's archival standard.

The second is the assumption of documentation as preservation: that recording a craft tradition protects it from loss. This practice reconceives documentation as economic activation. A certified Knowledge Keeper profile is not a museum record; it is a market credential, a tourism asset, and a policy evidence instrument simultaneously. Designing documentation and economic activation as a single integrated system — rather than a sequence — places the practitioner's livelihood at the center of every architectural decision.

The third is the assumption of technological deficit: that communities in the Global South or in linguistically marginal contexts lack the digital capacity to participate meaningfully in their own documentation. The Bida and Sukhothai implementations demonstrate that the barrier is not just community capacity but most often tool design — a finding that demands tools built for the most linguistically marginal practitioner, not the most digitally fluent.

A fourth assumption worth examining is the expectation of project-level impact attribution in complex territorial systems. Heritage documentation projects operating within UCCN function as components of multi-actor ecosystems: they interact with trade fair infrastructure, vocational training pipelines, institutional designations, and cultural tourism networks in ways that make single-project attribution methodologically inappropriate and, if imposed, misleading. The relevant question is not "what did this project cause?" but "what role did this project play in a convergent strategy?" In Bergamo, the Cheese Valleys documentation project played a specific and clear role: it produced the certified Knowledge Keeper profiles, geo-tagged cultural itineraries, and institutional credentials (the Ambassador of Orobic Gastronomic Knowledge designation) that make producer expertise legible to the tourism, educational, and trade fair infrastructure that the designation has simultaneously built.

6.2 What This Practice Offers Design Discourse

At the level of methodology, this field practice demonstrates that the traditions of design for social innovation, design justice, co-design, and place-based autonomous design can be operationalized simultaneously in a single deployable framework. Manzini, Costanza-Chock, Sanders and Stappers, and Escobar are not competing frameworks here but complementary lenses, each illuminating a different dimension of what the practice has developed in the field.

At the level of design theory, the practice suggests that Cross's ways of knowing (2006) extend beyond the design of objects, spaces, and services to encompass the design of

knowledge systems — the infrastructure through which communities understand, represent, and share their own expertise. The problem of designing for living knowledge resists the standard design toolkit: user research cannot capture tacit knowledge, prototyping cannot replicate intergenerational transmission, and conventional evaluation cannot assess economic consequences at the timescale's documentation requires. The field responses developed here — heri-telling, gamified encounter architecture, real-time disaggregated impact measurement — are offered to the design community as practice-derived alternatives worthy of further scholarly examination.

6.3 The AI Transcription Tool: Genesis, Status, and Forward Deployment

The AI-assisted multilingual transcription tool described in Step 2 is the most significant current technical development frontier. The tool was not available at the start of the implementations described. Its development was prompted by field evidence generated during the Bread Between Us project: conventional bilingual transcription proved insufficient across seven Arabic dialect contexts, where the cultural specificity of oral traditions was being lost in post-production translation — the point at which linguistic accessibility and epistemic accuracy diverge.

The tool is currently under active testing. It has been integrated into the BBU workflow, but its performance across the full range of dialect contexts has not yet been systematically evaluated. This paper makes no claim about its effectiveness beyond describing it as a designed response to a documented field failure.

The testing agenda spans several contexts: C&FA cluster Level 2 to Level 3 expansion (Sukhothai among the first cohort); deepening Knowledge Keeper coverage in the Bread Between Us cities; and full territorial coverage for the Cheese Valleys and Hands at Work projects.

Conclusions

The loss of traditional craft knowledge is not inevitable. It is the consequence of specific, identifiable structural conditions — economic marginalization, digital invisibility, the absence of trained local documentation workforces, and the failure to design infrastructure that serves community authorship while meeting institutional accountability requirements — that specific, designable interventions can address.

This paper has reported on a field-developed practice that addresses these conditions through community authorship as a governance constraint, gamified intergenerational engagement, linguistic equity as a design requirement, and cluster-level digital platforms as accountability infrastructure. Distinguished from adjacent design traditions by its insistence that living communities are the authors of their own knowledge and the primary clients of every design decision, this practice offers the design community a set of principles developed through implementation rather than theoretical construction — and a body of field evidence from which design scholarship might draw.

The evidence presented — from craftsfolkart.org to documentation projects across three continents — demonstrates that these principles can be operationalized across multiple UCCN creative clusters, generating measurable outcomes across social, economic, digital,

educational, and institutional dimensions. The Bergamo case confirms that creative value chain mapping applies across successive documentation cycles. The Bread Between Us case demonstrates that a field practice can respond to the design problems its own implementations reveal. Case Study D proposes heritage-centred design as an input to architectural practice: a framework in which craft practitioners' material knowledge constitutes both a resource and a constraint for architectural decision-making.

The practice is in development. The AI tools it depends upon require continued investment. The governance implications have not been tested at full scale. Impact attribution at project level — rather than ecosystem level — remains a methodological challenge inherent to the type of territorial practice described: where multiple convergent initiatives operate simultaneously, isolating the contribution of any single component requires longitudinal study designs not yet available for the implementations described here.

These limitations are acknowledged as the agenda for the next implementation cycle — to be pursued in dialogue with the communities whose knowledge makes this work worth doing.

Author Disclosure: Giuseppe Biagini is Founder of the Creative Knowledge Foundation (CKF), an independent non-profit organization working at the intersection of cultural heritage, creative economies, and international cultural governance. CKF is not affiliated with UNESCO. The methodology described was developed through field implementation rather than derived from design theory; the author contributes to this journal's discourse from a practitioner research perspective. Field implementations described are CKF projects. Correspondence: g.biagini@ck.foundation

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