



Making Imagined Futures Stick: Practical Knowledge and Translation in Future-Making

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General Track

**Making Imagined Futures Stick:
Practical Knowledge and Translation in Future-Making**

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Abstract

A key issue in future-making is how imagined futures become durable beyond the conversations in which they are articulated. Drawing on a two-phase qualitative study in the Swedish built environment sector, combining 38 interviews and observations from online scenario workshops involving 21 practitioners, we explain how this happens in practice. Our analysis focuses on two analytically related moments. One moment concerns how practitioners open up conversation and negotiation around future cues; another concerns how they narrow discussion into formulations that can be written down and reported as shared inscriptions. We theorize these as moments of translation. Across both moments, *naming*, *templating*, and *warranting* recur as heterogeneous pathways, each mobilizing a different form of practical knowledge that is *both* carried into and enacted in the situation. *Naming* works mainly through portable vocabularies, *templating* through representational formats, and *warranting* through practical judgments of legitimacy. The paper advances a practice-theoretic account of how future-making is translated across representational thresholds and shows that what gains durability is not the “best” imagined future itself, but an inscription made durable enough to travel.

Keywords: future-making, imagined futures, practical knowledge, practice theory, translation, (scenario workshops)

Introduction

Future-making, through which practitioners together enact organizational life by imagining what is yet to come, has become an increasingly important conversation in management and organization studies. Early work emphasized forecasting, rational planning, and information-processing designs intended to reduce uncertainty enough to coordinate decisions (Thompson, 1967; Galbraith, 1974), while later scenario planning and related foresight practices replaced the idea of a single expected trajectory with multiple plausible futures in response to growing uncertainty (Bradfield et al., 2005; van der Heijden, 2005). More recently, the future has been rediscovered as a problematic, open-ended category that resists prediction and control and cannot be delineated through planning practices alone (Wenzel et al., 2020; Ramoglou, 2021; Tutton, 2017). This has shifted attention away from improving forecasts and toward examining *how* imagined futures become consequential through what organizational actors do in the present (Wenzel et al., 2025; Whyte et al., 2022). In this conversation, practical knowledge has become increasingly important, as partial and evolving future representations are produced, refined, and organized through situated practical knowing and judgment (Thompson & Byrne, 2022; Whyte et al., 2022).

Responding to concerns that future-making risks conceptual dilution, a practice perspective redirects attention to what people do — and with what artefacts and representations — when making futures (Wenzel et al., 2025). Scenario planning workshops, for instance, provide

structured forums for articulating and negotiating plausible alternatives (Bradfield et al., 2005; van der Heijden, 2005; Hodgkinson et al., 2006; Johnson et al., 2010), while strategy tools and templates shape what can be attended to, compared, and documented as discussion unfolds (Jarzabkowski & Kaplan, 2015). Futures are also stabilized through visual artefacts and inscriptions that transform fleeting talk into workable reference points for collective action (Comi & Whyte, 2018). At the same time, future-making practices often unfold across sequences of activity and across representational outputs rather than within a single episode (Pettit et al., 2023; Wenzel et al., 2025). Recent studies have begun to trace how such work unfolds across sites, actors, and artefacts (Pettit et al., 2023; Whyte et al., 2022; Hungnes et al., 2024; Durante et al., 2025; Lesage et al., 2025; Okwechime, 2025). Yet these accounts remain less explicit about how practices are connected moment by moment through the situated work of practitioners, and about how participants' carried understandings shape what becomes discussable, defensible, and inscribable as future-making unfolds.

What remains under-specified, then, is the role of practitioners in connecting future-making practices. A practice perspective is incomplete if it attends to practices while leaving practitioners implicit (Whittington, 2006). Relatedly, Wickert (2025) urges researchers to study future-making “at the coalface,” where agency becomes visible in how particular actors enable or impede the continuation of future-making work across moments and settings. For our purposes, this means asking how practitioners perform the situated work through which future-making practices become connected and consequential over time. It also means taking knowledge seriously, not only as something enacted in real time, but also as something practitioners carry into the situation in the form of socially learned understandings of what futures are plausible, responsible, nameable, or workable (Thompson & Byrne, 2022; Cook & Brown, 1999; Bourdieu, 1977; Giddens, 1984).

We explore these issues in the Swedish built environment sector, a setting often characterized by short-termism, fragmented interdependencies, and persistent difficulties in scaling digital transformation (Green, 2011; McKinsey, 2020; Dubois & Gadde, 2002; Koeleman et al., 2019). This makes it a strong site (Merton, 1987) for examining how practitioners imagine futures under conditions where competing trajectories are plausible, contested, and difficult to stabilize. Empirically, this becomes visible when an imagined future “sticks” on a shared artefact. Here, “stick” refers to the stabilization of future representations produced in collective work, rather than to any deterministic claim about realized futures (Beckert, 2016; Wenzel et al., 2025; Wright, 2025). Against this background, we ask:

How do practitioners make imagined futures stick, and what practical knowledge shapes this process?

Analyzing interviews with practitioners and observational data from scenario workshops, we show how imagined futures become durable beyond the conversations in which they are articulated: practitioners open up discussion around future cues, narrow parts of that discussion

into shared inscriptions, and in doing so render selected formulations durable enough to be carried forward.

Theoretical Background

Taking knowledge seriously, Thompson and Byrne (2022) propose that future-making rests on practical knowledge enacted in real time -discursive, embodied, and material. Wickert (2025), in contrast, foregrounds knowledge as a condition of agency “at the coalface,” shaping whether particular practitioners succeed or fail in sustaining future-making across moments and settings. Building on these complementary emphases, we consider practitioners future-making activities as distinctive forms of mobilizing practical knowledge.

A future-making practice perspective

A practice-theoretical approach to knowledge foregrounds knowing; an ongoing accomplishment in situated activity rather than knowledge as a detachable object (Orlikowski, 2002). Knowing is enacted and materially mediated, distributed across people and artifacts rather than stored as a transferable commodity (Orlikowski, 2002). Nicolini (2011) similarly locates the site of knowing in a nexus of interconnected practices and their relations, directing attention to how dispersed knowings are woven together in practice and with what effects (Nicolini, 2011). In future-making research, this orientation is reinforced by work showing that futures are assembled in and through sociomaterial doings, including work with visual artifacts and other representational media (Comi & Whyte, 2018; Thompson & Byrne, 2022). Relationality, in this setting, depends on how practitioners keep work connected as representations are produced, revised, and carried across moments (Nicolini, 2011; Wenzel et al., 2025).

Thompson and Byrne (2022) theorize this as textures of practical knowledge, meaning shared, embodied, tacit intelligibilities that bind practitioners in webs of mutual expectations while enabling the situated creation of imagined futures (Thompson & Byrne, 2022). Their non-representational stance treats future-making as an entanglement of discursive, embodied, and material doings rather than the externalization of pre-formed mental content (Thompson & Byrne, 2022). Likewise, Whyte et al. (2022) conceptualize future-making as inquiry proceeding through engagement with partial representations of the future, and they show how sustaining participation and connection becomes a practical problem when work proceeds through representations over time (Whyte et al., 2022).

However, practice theory also emphasizes that knowing cannot be treated as arising uniformly from situations alone. A long tradition treats action as organized by learned, embodied, and socially sedimented resources that practitioners carry into situations. Bourdieu’s notion of habitus captures this as durable, transposable dispositions that generate and organize practice without reducing action to explicit rule following (Bourdieu, 1977). Similarly, Giddens describes practitioners as knowledgeable agents whose practical consciousness involves tacit mastery of how to go on in the routines of social life (Giddens, 1984). Sandberg strengthens this point by

showing that competence is constituted by how work is understood in experience, and that this understanding shapes what becomes salient and doable in practice (Sandberg, 2000). Taken together, these streams of practice theory make it possible to speak about what practitioners bring with them without treating knowledge as a fixed attribute, and they support a carried and enacted view of knowing.

Carried understandings and enacted knowing in future-making

The view proposed here foregrounds enacted knowing as it becomes visible in situated doings and their material mediation in future-making settings (Orlikowski, 2002; Thompson & Byrne, 2022). It also foregrounds carried understandings as socially acquired and embodied orientations that organize what is intelligible and doable, including how futures are rendered credible and actionable in practitioners' accounts (Bourdieu, 1977; Sandberg, 2000). This study's focus on relationality therefore benefits from keeping *both* in view because knowing at representational thresholds draws on what practitioners bring with them while remaining an accomplishment of the moment (Giddens, 1984; Nicolini, 2011).

Prior research helps specify what tends to become consequential at representational thresholds in three ways. First, collective work can be advanced through situated language that organizes participation, sequences contributions, and crafts formulations that others can treat as actionable in the moment (Rouleau & Balogun, 2011). It is also suggested that widely recognizable labels can circulate as portable vocabularies that compress complexity and travel across contexts (Abrahamson, 1996). Since future-making proceeds through partial representations the shared work often depends on formulations that can be revisited and handled through representational elements (Whyte et al., 2022).

Second, tacit knowing foregrounds socially sedimented bearings on credibility, appropriateness, and responsibility (Polanyi, 1966). Such bearings are commonly acquired through participation and socialization, which surface as practical judgment rather than explicit rule (Polanyi, 1966). Specifically, Rouleau and Balogun (2011) show that work through situated language draws on sociocultural systems that shape what counts as legitimate, timely, and defensible in a given forum (Rouleau & Balogun, 2011). These are carried understandings in the sense that they are socially acquired and embodied ways of grasping what can reasonably be advanced and stood behind in situated work (Bourdieu, 1977; Giddens, 1984), yet a past that practitioners draw on when reimagining futures (Kaplan & Orlikowski, 2013).

Third, knowing is materially mediated and becomes observable in how practitioners act with and through artifacts (Orlikowski, 2007). Future-making research aligns with this view by showing how visual and textual artifacts can stabilize and reify emergent understandings into workable reference points for collective action (Comi & Whyte, 2018). This is supported by Thompson and Byrne (2022) who emphasize that discursive, embodied, and material doings are entangled in the situated production of imagined futures.

Relationality also intensifies when practitioners must translate across boundaries of meaning and interest rather than only transfer information (Carlile, 2004). Translation may involve developing shared meanings and working through pragmatic consequences across communities (e.g., group meetings in industry settings subject to transformation) (Carlile, 2004). Common ground can be constructed through situated co-interpretation that transforms understanding across occupational communities (Bechky, 2003). These dynamics connect to why boundary objects and interaction among heterogeneous social worlds can open up passage points (Star & Griesemer, 1989). Such translation pressures in future-making settings concentrate around representational thresholds, as practitioners and practices proceed through partial representations and the organizing challenge is to sustain participation and connection through them (Whyte et al., 2022; Nicolini, 2011). Here, translation is used analytically to specify how future-making proceeds across representational thresholds, rather than as a separate explanatory framework.

In sum, we advance a practice-theoretic view that examines how heterogeneity and relationality are accomplished in future-making at representational thresholds where conversation is translated into durable inscription. This view foregrounds both practitioners' carried understandings and their enacted knowing in the situated work of imagining futures.

Method

Research Setting

We study future-making in the Swedish built environment sector, which spans the conditions for housing, mobility, work, and infrastructure systems such as energy, water, and sewage, and is frequently presented as both societally central and economically significant in Sweden (IQ Samhällsbyggnad, 2020). The sector is multi-actor and multi-site, involving public and private organizations across development, design, contracting, and supply. This heterogeneity is interesting for our purposes because future-making in such settings tends to be distributed across many parties and proceeds through engagement with representations of the future (Whyte et al., 2022). These representations must also be robust enough to retain a recognizable identity as they travel across sites and communities of practice over time (Star & Griesemer, 1989).

At the same time, the sector is repeatedly characterized as difficult to transform. A common explanation is that project-based organization and fragmented interdependencies make coordination and learning hard to sustain beyond the single project (Dubois & Gadde, 2002). , the sector is frequently described as a late mover in digital transformation, with persistent coordination and scaling difficulties that foster conservative and risk-aware orientations toward change even as expectations of disruption intensify (Koeleman et al., 2019; Dubois & Gadde, 2002). Longstanding commentaries also portray construction as lagging other industries in innovation and modernization (Woudhuysen & Abley, 2004). This combination is empirically useful because it creates a context where competing futures are plausible and contested, and where the practical problem is not only imagining futures but stabilizing them in forms that can be carried forward. Future-making often proceeds through partial representations that require

ongoing work to sustain participation over time (Whyte et al., 2022). Linking work therefore becomes visible at representational thresholds where talk is translated into inscriptions that can be revisited and carried forward (Nicolini, 2011), including the visual and textual artifacts through which emerging understandings are stabilized into reference points for collective action (Comi & Whyte, 2018). The Swedish construction sector therefore provides a strong setting for examining how imagined futures are produced, negotiated, and stabilized through representational media in practice.

Research design and data

We designed a two-phase qualitative study that links accounts of imagined futures to situated future-making interactions. We entered the study with a sensitizing expectation that the built environment sector's relatively cautious stance toward digital change may shape how futures are imagined and assessed, as construction is often portrayed as one of the least digitized industries despite growing expectations of disruption (Koeleman et al., 2019). We also expected that practitioners positioned inside and around the sector might differ in how they orient to possibilities and constraints, given evidence that incumbents tend to mobilize digital technologies more defensively while new entrants more readily advance expansive opportunity-oriented offerings (Holland & Kavuri, 2024). These expectations motivated a comparative design that includes both incumbents and potential new entrants and brings them into structured interaction in the workshop setting.

Phase 1 consists of open-ended interviews aimed at eliciting participants' detailed visions of digital transformation and how they reason about plausible trajectories, constraints, and roles in producing change. Phase 2 is an online scenario workshop where participants collectively discuss future scenarios and document their discussion through a shared canvas template. This design builds on research showing that future-making commonly unfolds through incomplete representations that require ongoing work to sustain participation over time (Whyte et al., 2022). It treats linking work as observable where conversation is translated into inscriptions that can be revisited, stabilized, and carried forward within the workshop setting (Nicolini, 2011; Comi & Whyte, 2018).

Interviews were conducted across two substudies (N = 38). Substudy 1 (spring and autumn 2021) comprised 17 interviews with incumbents within the sector, including architects, municipal officials, developers, consultants, contractors, and material suppliers. Substudy 2 (spring 2022) comprised 21 interviews with practitioners positioned around the sector, including start-ups and established technology firms exploring construction as a future market. Interviews were audio-recorded and transcribed verbatim, initially using automated transcription and subsequently corrected manually, yielding approximately 1,000 pages of text.

To bring these visions into direct interaction, we invited interviewees to a structured online scenario workshop (autumn 2022) conducted via Zoom. Due to availability, 21 participants took part, evenly split between incumbents and new entrants, and were distributed across six breakout

groups of two to five participants. The workshop was organized as three successive rounds held on the same day. In each round, groups worked with one of three scenarios that the research team had developed by synthesizing patterns across the interview material. The task was not to choose a preferred future, but to elaborate plausible futures by examining assumptions, implications, and points of contestation in the scenarios. Between rounds, groups returned to plenary for brief reporting, which created additional pressure to condense discussion into portable formulations.

During breakout discussions, participants documented their evolving points in real time using a shared canvas template. This made the workshop an episodic forum in which future-making became observable as it unfolded, including how contributions were compressed, positioned, and stabilized into inscriptions (Hendry & Seidl, 2003). Because the work proceeded through a template, the format also shaped what could be advanced and stabilized as an output (Jarzabkowski & Kaplan, 2015). By treating the workshop as a bounded space in which interaction could be intensified and made consequential for collective outputs, we were able to trace how selected future meanings moved from conversation into written representation (Pettit et al., 2023).

The workshop generated two types of empirical material: (1) written traces produced on the shared canvas in each breakout group and (2) recordings of interaction in the plenary (main room) and breakout rooms. The interactional dataset has three coverage constraints. First, the first workshop round was not recorded in any breakout room, which means that for that round we rely on plenary reporting (recorded in the main room) and the written canvas entries, rather than on sequential breakout-room interaction. Second, breakout Group 6 is missing the final round in the recording corpus. Third, breakout Group 1 is available as audio only (without video), which limits analysis of embodied conduct while preserving turn-by-turn talk and its relation to inscription.

Throughout, we use the terms insiders and outsiders as relational shorthand for being embedded within, or approaching from outside, the sector's established value activities and routines. These labels are used as contextual descriptors rather than actor types.

Data analysis

Our analysis is practice-oriented and focuses on how future-making is accomplished through situated sayings and doings, including work with representational media. To examine interaction at this level of detail, we follow ethnomethodological and conversation-analytic sensibilities that treat meaning as sequentially organized and produced turn by turn in interaction (Heath et al., 2010; Hindmarsh & Pilnick, 2007). We therefore attend not only to what participants say, but also to how they accomplish collective work through the unfolding organization of turns and multimodal conduct (Best & Hindmarsh, 2019; Llewellyn, 2015).

We analyzed the interview corpus first to identify recurring ways participants reasoned about the sector's digital future. The open-ended interviews are treated as an *interactional practice* in

which interviewee and interviewer jointly produce accounts in the encounter, rather than as a pipeline for extracting pre-formed beliefs (Rapley, 2001; Holstein & Gubrium, 1995). Accordingly, we analyze interview talk as account-giving, that is, socially organized explanations that render claims intelligible and defensible for an audience by linking imagined trajectories to practical realities and plausibility conditions (Scott & Lyman, 1968). This analytic stance is particularly appropriate for future-oriented interviewing because interviewees' accounts often mobilize *imagined futures* as part of justificatory reasoning about what could or should happen and why (Telling, 2026). Coding began inductively with open keywords capturing how futures were described, justified, and limited. As patterns stabilized, we developed comparative summaries and tables to support cross-case comparison while keeping attention on how futures were made intelligible in participants' accounts. This interview analysis informed scenario construction and provided contextual grounding for interpreting workshop episodes. It also produced a compact analytical table (Table 1) that summarizes the recurring orientations through which futures were made graspable in participants' accounts, together with their later correspondence to the pathways identified in the workshop analysis.

We then analyzed the breakout-room recordings through a structured, full-coverage workflow. The starting point was a time-coded event log for each breakout session, capturing turn-taking shifts, role allocation, silences, and salient moments where participants oriented to the shared canvas. These logs were produced for full coverage before any selection for close analysis (Heath et al., 2010).

These coverage constraints shaped what we treat as evidence. For the unrecorded first round, we analyze only the produced inscriptions and the plenary reporting, and we refrain from making claims about the sequential organization of breakout-room talk. For Group 6, we draw interactional evidence only from the recorded rounds available. For Group 1, we focus on talk, timing, and audible orientations to the canvas, and we do not make claims about embodied conduct.

From the event logs, we labeled recurrent micro-practices as observable micro-moves in talk and action that have a recognizable interactional function in the workshop setting. Each coded event was stored as one row with a timestamped description, a micro-practice label, a functional category, and an assignment to a higher-level practice bundle. A "related micro-practice" column was used to preserve sequential linkage between moves and to note activities that occurred in close succession or overlap. We then grouped micro-practices into functional categories and aggregated them into two recurring practice bundles that consistently co-occurred across groups.

To keep the analysis faithful to sequential conduct, we also mapped typical transitions between micro-practices. This transition mapping made visible recurrent sequences such as initiating the session leading into coordinating the discussion, and coordinating moves repeatedly leading into further coordinating, confirmation, or inscription-related moves. It helped us identify stable segments of interaction and informed the boundaries of episodes selected for close analysis.

For close analysis and presentation, we selected episodes where interaction became consequential for what was documented and later reported. Selection followed full-coverage logging rather than convenience. We prioritized sequences with clear orientations to the canvas, visible negotiation, and observable linking between conversational progression and inscription. To situate selected episodes, we returned to the interview accounts of participants involved in the selected sequences. This allowed us to relate ways of reasoning in interviews to situated future-making conduct in the workshop without treating individuals as stable types or the explanatory unit. We summarize the interview-based orientations in Table 1, the video-coded material in Table 2, and the overall process in Figure 1. Together, these visuals provide an overview of how the empirical material is organized for presentation in the Findings section.

Rigor, ethics, and transparency

We iterated analysis in the research team by comparing event logs, micro-practice labels, and episode interpretations, and by returning to raw recordings when disagreements emerged. This supported consistency in micro-practice labeling and in the aggregation step from micro-practices to functional categories and practice bundles (Heath et al., 2010). We anonymized participants and removed identifying organizational details in transcripts and reporting. Automated transcription was used only as an initial step and was followed by manual correction.

Findings

The findings show the process through which imagined futures stick in representationally organized future-making. We begin by showing how carried understandings shape the future cue. We then trace two analytically related moments through which imagined futures become durable beyond conversation. The first is visible in Orchestrating the room, especially through entry translation, where practitioners open up discussion around future cues. The second is visible in Inscribing the future, especially through canonical translation, where parts of that discussion are narrowed into shared inscriptions. Across both translation moments, naming, templating, and warranting recur as the main pathways through which discussion is opened up, narrowed, and rendered inscribable. We begin with the interview material, where participants' carried understandings become visible in how they describe possible futures and make them graspable in practice.

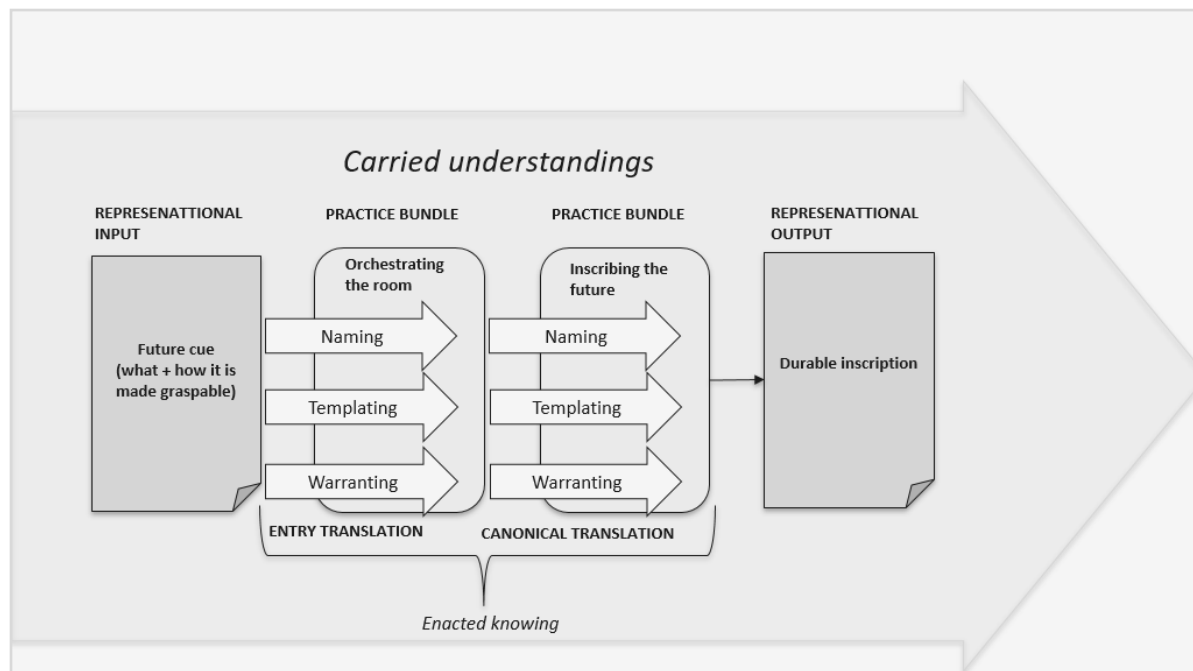


Figure 1. Three pathways of how futures stick. The process begins with a future cue, understood as an incomplete representation of the future that combines what is proposed with how it is made graspable. From there, future-making proceeds through two interdependent practice bundles: Orchestrating the room and Inscribing the future. Within Orchestrating the room, Entry translation refers to the early work through which the scenario becomes a shared topic for collective inquiry. Within Inscribing the future, Canonical translation refers to the work through which discussion is rendered inscribable and durable as a shared representational output. Across both translation moments, naming, templating, and warranting recur as the main pathways through which future meanings are framed, organized, and stabilized. Carried understandings operate throughout as a background layer, while enacted knowing becomes visible in the situated work through which meanings are translated and stabilized in representation.

How carried understandings shape the future cue

The interviews revealed that the participants shared a common understanding that the built environment sector has so far been less transformed by digital technologies than many other industries, while also expecting digitalization to have major consequences in the future. They also drew on a broadly shared repertoire of technologies and a general understanding of their potential, including AI, digital twins, platforms, robotics, parametric design, and data-driven coordination. At the same time, the analysis revealed important differences in how these technologies were tied to possible futures. These possibilities were not interpreted from a neutral position. Instead, they were filtered through the practical realities of participants' present work, including the constraints, incentives, dependencies, and opportunities that shaped how they currently created value in and around the built environment sector.

In this paper, we treat these interpretations as *carried understandings*. Carried understandings are socially learned practical orientations that shape how futures become recognizable, plausible, and actionable once they enter interaction. Importantly, these orientations differ not only in what kind of future is proposed, but also in how that future is made graspable. We refer to this combination of what is proposed and how it is made graspable as the *future cue*. The future cue is therefore not a fully formed vision, but an incomplete representation of the future that can later enter collective work in the workshop setting. Table 4.1 outlines how participants' practical realities functioned as an interpretive filter that shaped different carried understandings of the future.

A recurring pattern concerned participants' positions in and around the current ecosystem. Those whose work, and income were embedded in, prevailing industry arrangements tended to frame the future through detailed knowledge of project-based organization, fragmented value chains, regulation, standards, and skewed risk-reward structures. Their carried understandings of the future were therefore more cautious and more closely tied to what would need to be adapted, negotiated, and aligned before change could scale. This orientation is captured in Table 4.1 as *contextual realism*.

A second pattern appeared among participants whose work centered on implementing, adapting, and embedding digital solutions in ongoing practice. These participants often imagined the future as emerging through integration, experimentation, and gradual adjustment rather than through either continuity or radical discontinuity. Their accounts were closely tied to the practical work of making digital tools fit existing routines, interfaces, and sequences of work. This orientation is captured as *incremental transformation*.

A third pattern appeared among participants whose work was more strongly oriented toward data- and platform-based business models. These participants were generally less anchored in current sector constraints when imagining the future and more likely to foreground opportunities for broader transformation. Their future cues were therefore less tied to adaptation within prevailing arrangements and more open to discontinuity. This orientation is captured as *radical reconfiguration*. Across all three patterns, what participants hoped for was closely linked to what they currently depended on and worked to advance. Table 1 summarizes these interview-based orientations and how they shape future cues. It should be read as an analytical map of the interview material rather than as a left-to-right process sequence; the final column indicates the pathway with which each orientation later shows the strongest correspondence in the workshop analysis.

Table 1 Interview-based orientations that shape future cues, with later analytic correspondence to the three pathways

Carried orientation	Dominant interview language	Future cue - what is proposed?	Future cue - how is it made graspable?	Dominant later pathway
Contextual realism	“low risk within the silo,” “project dominance,” “knowledge leakage,” “the ball is in someone else’s court,” “change through requirements rather than through leadership”; standards, compatibility, BIM, integration, structured/searchable data, app libraries, digital twins, data-driven production/management	A future that is possible only if it can be made workable within existing contractual, regulatory, and coordination conditions	Through feasibility, fit, accountability, and interdependence; the future appears as something that must be defended as realistic, compatible, and responsible	Warranting
Incremental transformation	“new wine, old bottles,” “project-by-project adoption,” “tool fragmentation,” “partial integration,” “siloeed product portfolios”; process automation, process optimization, system integration, common data environment, data utilization, database-driven processes	A future that extends and improves ongoing practices rather than replacing them outright	Through process language, integration work, and infrastructural fit; the future appears as something to be inserted into existing workflows, categories, and sequences	Templating
Radical reconfiguration	“from bricks to 0 and 1s,” “data-economies of scale and scope,” “vibrant interfaces”; platform, open platform, platform of platforms, cloud / Construction Cloud, P2P lending, gamification, SaaS, subscription models, metadata, industry-agnostic AI	A future that redefines value creation, interfaces, and sector boundaries through data- and platform-based business model logics	Through portable labels, metaphors, and cross-industry formulations that compress complexity and make discontinuity nameable across contexts	Naming

While these differences can be grouped into three visions of the future, the central point is not the detailed content of each vision, but the mechanism behind them. These visions should be read as expressions of distinct forms of practical engagement with the sector rather than as fixed actor

categories. The future was not simply predicted. It was interpreted from within participants' practical realities.

Table 1 shows that carried understandings shape future cues in distinct ways. Contextual realism cues the future through conditions of feasibility, compatibility, and responsibility. Incremental transformation cues the future through integration work, process improvement, and infrastructural fit. Radical reconfiguration cues the future through portable labels, metaphors, and business-model formulations that make discontinuity nameable across contexts. The point is therefore not only that participants imagine different futures. It is also that these futures enter interaction in different forms. Contextual realism enters as conditions of feasibility and responsibility. Incremental transformation enters as matters of fit, integration, and ongoing adjustment. Radical reconfiguration enters as portable labels, metaphors, and formulations that make broader transformation graspable.

Table 2. Analytical overview of the video-coded workshop interaction.

Practice bundle	Category	Micropractices / indicators
Orchestrating the room	Opening & wrap-up	Launching the session; checking presence; closing the conversation.
	Participation management	Managing participation; inviting a participant; seeking confirmation; interrupting to redirect; questioning a participant.
	Sensemaking & alignment	Keeping the talk on track; positioning in time; affirming/aligning; praising a contribution; using humor.
	Progression & direction	Pacing the conversation; structuring the workflow; refocusing the discussion; proposing progression.
	Contesting & repair	Challenging an idea; defending an idea; challenging/defending; repairing misunderstanding; withdrawing/softening a vision.
	<i>Entry translation</i>	Interpreting the prompt; framing the prompt; anchoring the prompt aloud; handling format/technology; meta commentary on process/documentation.
Inscribing the future	Capturing & displaying	Writing on the canvas; displaying; confirming what is written.
	Stabilizing & revising	Reading back what is written; revising placement; revising a note.
	<i>Canonical translation</i>	Making a contribution writable; handling format/technology; meta commentary on process/documentation.

Table 2 summarizes the recurrent categories in the video-coded material. Entry translation and Canonical translation are shown as analytically focal categories because they mark the two translation moments through which future cues are first opened up for collective inquiry and later narrowed into durable inscription.

Orchestrating the room

Orchestrating the room refers to the interactional work through which participants make the discussion proceed as collective, task-relevant inquiry in the workshop setting. The scenario does not by itself become collective work. Participants first have to position themselves to what they have read and heard, and they have to establish a shared enough orientation for the discussion to move forward.

Participants enter the discussion through an initial orientation to the scenario and its instructions. Sometimes they read silently, sometimes one participant reads aloud, and sometimes the discussion begins immediately through brief exchanges around what they should do. What follows is not automatic. Someone has to initiate movement, someone has to help keep the conversation together, and someone has to help the group recognize when it has enough to move on.

Across the workshops, *Orchestrating the room* included work of opening and closing the discussion and of shaping participation. It also included keeping a shared sense of what was being discussed, pacing progression, and handling contestation and repair. This was important because the work could otherwise stall in hesitation, fragment into disconnected contributions, or drift into parallel lines of reasoning. In one group, movement was initiated by the remark, “I’ll start writing if you others discuss,” which gave the interaction both direction and momentum.

Participation management was important because invitations, questions, confirmations, and interruptions shaped who entered the discussion and which contributions became available to the group’s developing line of inquiry. Maintaining shared sense was equally important. Participants kept the talk on track, positioned contributions in time as “already happening” or “later,” and used brief agreements, supportive responses, and occasional humor to stabilize the interaction. At the same time, they had to pace the work by deciding when to continue exploring, when to shift attention, and when time pressure required provisional closure.

Orchestrating the room also included contestation and repair. Ideas were challenged, defended, softened, and occasionally repaired when misunderstanding or friction threatened the flow of the discussion. This was important because the discussion first had to function as a collective setting before anything could later be rendered durable on the shared canvas.

The most important part of *Orchestrating the room* involved what we call *entry translation*. Entry translation refers to the early work through which practitioners open up conversation and negotiation around future cues. The point is not that future cues themselves become shared objects automatically. Rather, practitioners use their situated practical knowledge to turn incomplete prompts and initial reactions into a shared enough topic for collective inquiry. Across the material, this opening work repeatedly took three forms: *naming*, *templating*, and *warranting*.

In its entry form, naming was visible when participants introduced labels or short expressions that framed what the discussion should be about. In some cases this happened by folding the new scenario into an already recognizable line of reasoning, as when one participant said, “this is scenario two... it’s basically the same technologies anyway.” In other cases, participants supplied a compact expression that gave the discussion direction and made it easier for others to align around a shared topic. Naming therefore did not simply identify content. It framed the scenario in terms that made collective discussion possible.

[Insert Entry Translation Excerpt 1: Naming here]

The entry form of templating occurred when participants oriented themselves to the workshop format itself. Here the issue was not only what the scenario meant, but how the group should begin to work on it through the instructions, the shared surface, and the documentation format. This was visible when participants moved across the shared canvas in order to connect the scenario, the instructions, and the places where their contributions were to be documented, for example by reorienting the group “a bit to the left.” It also became visible when the technology had to be navigated for the task to proceed, as in remarks such as “reload the page... you may have to log in again.” Templating therefore made the scenario workable in the practical terms of the exercise.

[Insert Entry Translation Excerpt 2: Templating here]

In its entry form, warranting occurred when participants established early criteria for whether the scenario could reasonably be worked on at all. In these moments, the group was not only asking what the scenario suggested, but whether it was plausible enough, close enough to sector reality, or timely enough to justify further discussion. This was visible when a scenario was treated as sufficiently credible to move ahead, for example when participants concluded that “it’s not entirely unlikely.” Warranting therefore filtered the scenario through early judgements of workability and legitimacy.

[Insert Entry Translation Excerpt 3: Warranting here]

Taken together, these three forms show how participants moved from an initial encounter with the scenario to a shared enough orientation for collective work. Entry translation was therefore the first point at which carried understandings became consequential in situated interaction. It was here that participants’ practical knowledge shaped how the scenario was framed, organised, and judged so that the discussion could proceed

Inscribing the future

If *Orchestrating the room* organized the discussion as collective work, *Inscribing the future* concerned how selected meanings materialized as durable output on the shared canvas. This practice brought together several closely related forms of work. Some of these concerned capturing, displaying, stabilizing, and revising inscriptions on the shared canvas. Another concerned the translation work through which contributions were rendered inscribable in the first place. Inscribing the future was therefore not neutral record keeping. To inscribe was already to select and formulate. To display and confirm was to make an inscription accountable to others. To read back was to make what had been inscribed inspectable and hearable as what the group now had.

This was important because the canvas did not simply store ideas. It gave the interaction a representational afterlife. What was inscribed could be revisited, adjusted, and later reported in plenary, while what was not inscribed tended to fade. In this setting, the shared canvas was not only a surface for words. It also organized placement, sequence, arrows, color, and other visible markers that shaped how contributions appeared and related to one another. Even small moves in this practice could therefore become consequential because they shaped what became durable enough to travel beyond the group discussion and into plenary reporting.

One part of this practice involved what we call *canonical translation*. Canonical translation concerns the narrowing of discussion into formulations that can stand for the group in written form. It is the moment at which parts of an ongoing conversation are condensed into inscriptions that can be written down, revisited, displayed, and later reported. What matters here is not merely capture, but the practical work of rendering discussion durable beyond the moment in which it unfolded. We use *canonical* here in a practical sense. The point is not that a formulation became the future, nor that it was settled once and for all. The point is that it became canonical enough for the purposes of the workshop, meaning stable enough to be inscribed, displayed, and later reported. Across the groups, this translation work repeatedly took the same three pathways as in the entry translation moment, i.e. naming, templating, and warranting.

In its canonical form, naming occurred when a longer exchange was condensed into a portable formulation that could travel on the canvas. In Excerpt 4, the discussion begins as an open exchange about what value creation might come to rest on. The decisive move, marked by the black arrow, is the introduction of “game platforms / crowdwork” as the formulation that stands for the prior exchange and can be carried forward as the group’s candidate output. This was not simply another contribution to the discussion. It was the point at which discussion was compressed into a label that could persist on the canvas and be revisited later. In its canonical form, naming did not open the discussion as it did in entry translation. It closed part of the discussion by expressing it in terms that could travel.

Excerpt 4. Naming

Line	Speaker	Talk
1	B	So what do you actually make money on, then? What is it we're earning on?
2	A	If we make a future scenario from what you just said, then we have to be more together, more connected over time.
3	→ A	And that is why I'll write "game platforms / crowdwork" as a future direction from what you just said.
4	A	I'll put that on the canvas now, "game platforms / crowdwork."

Note. The arrow marks the turn in which the key move of canonical translation becomes visible.

This pathway of canonical translation draws on the carried understandings described earlier in the findings. Some of those accounts made future cues intelligible through portable vocabularies that gave opportunity-oriented possibilities semantic traction. In the group discussion, that portability became consequential because it enabled rapid condensation into a formulation that could be placed, revisited, and later reported.

Templating likewise appeared in a canonical form. Here an emerging contribution was fitted to the categories and spatial logic of the canvas. In Excerpt 5, the initial contribution concerns how improved data handling could open business opportunities outside the sector. The decisive move, marked by the black arrow, is the reduction of that contribution to "new customers / customer segments" and its simultaneous placement on a specific part of the shared surface. The contribution is therefore translated into something that fits both the category logic and the visual-spatial organization of the canvas. In its canonical form, templating made the contribution inscribable by aligning it with the representational logic of the exercise.

Excerpt 5. Templating

Line	Speaker	Talk
1	B	Once our industry gets better at handling data, it will open up business opportunities to use it outside our own sector, new markets, new revenue streams.
2	A	Right. I agree.
3	→ A	Put a note for that all the way to the right, "new customers / customer segments." Perfect.

4	B	I'll add it now, "new customers... customer segments."
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Note. The arrow marks the turn in which the key move of canonical translation becomes visible.

This mode of canonical translation also shows the workshop medium doing work. Earlier in the findings, some carried understandings made future cues plausible through ideas of compatibility, integration, and value creation across the ecosystem. In the group discussion, those differences became consequential only when they could be expressed in the visual and spatial format the group was collectively producing on the canvas.

Lastly, warranting also appeared in a canonical form. In Excerpt 6, the discussion begins with concern about risk and unintended consequences. The decisive move, marked by the black arrow, is the introduction of verification in practice as the criterion that makes the contribution acceptable. This does more than continue the discussion. It translates a broader concern into a sector-legible condition that justifies inscription. The final formulation incorporates that warrant into an inscribed statement about verification, risk management, and pilot testing. In its canonical form, warranting made the contribution reportable by grounding it in terms that participants treated as legitimate and responsible.

Excerpt 6. Warranting

Line	Speaker	Talk
1	B	It's always a risk to try something new. We've seen it before. Things looked fine, and then later you discover the consequences.
2	A	If we're going to capture this properly, let's write it like that, as a change in business models that has to happen.
3	→ B	We have to be able to fall back on facts, some kind of verification that these solutions actually work in practice.
4	A	Okay. So I'm writing. New technology must be verified, and risks have to be managed. That means trying it together in a pilot, not pushing all the risk onto one small actor.

Note. The arrow marks the turn in which the key move of canonical translation becomes visible.

This pathway of canonical translation draws most clearly on the more constraint-attuned carried understandings described earlier in the findings. Those accounts repeatedly emphasized risk distribution, coordination constraints, and the difficulty of scaling change beyond projects. In the group discussions, that orientation became a practical legitimacy filter. It shaped what could

responsibly cross from discussion into inscription and what could later be presented to the plenary as an acceptable account of the group's future.

Taken together, these three pathways show that Inscribing the future depended on more than the act of writing itself. Contributions had to be translated into formulations that could be stabilized, displayed, revisited, and reported. This is what canonical translation accomplished in practice. It narrows and condenses parts of the discussion into formulations that can persist as shared inscriptions on the canvas. It was also the point at which practical knowledge became consequential in a second way, not only by shaping how future cues were first taken up, but by shaping what could cross into inscription as an acceptable and portable formulation.

Discussion

The findings show how imagined futures stick in representationally organized future-making. More specifically, the study explains how carried understandings shape future cues, how those cues enter collective discussion, and how selected meanings are stabilized through inscription on the shared canvas.

This adds conceptual specificity to current future-making research. While recent work has emphasized the situated and performative character of future-making (Wenzel et al., 2025; Pettit et al., 2023), our findings show more precisely how imagined futures are progressively shaped through two linked translation moments, first into collective inquiry and later into durable inscription. The model therefore specifies not only that futures are made in practice, but how they are carried from interview accounts into workshop interaction and from workshop interaction into inscriptions that can be revisited and used within the workshop setting.

Knowledge in future-making as carried and enacted

A key implication of this process account is that practical knowledge matters in two senses. It is enacted in the moment, but it is also carried into the situation. This became visible when participants moved from opening up future cues for collective inquiry to narrowing discussion into durable output. What these translation moments illustrate is not only knowing in action, but also differences in what participants brought with them into the situation. As Cook and Brown (1999) suggest, the issue is not to choose between knowledge and knowing, but to attend to the generative dance between what participants bring into practice and what they accomplish in it.

In our findings, this generative interplay became visible through three recurring pathways: *naming templating*, and *warranting*. These should not be read as separate outcomes, but as heterogeneous pathways through which future-oriented discussion is carried across representational thresholds. Across both moments of translation, they recur as different ways of opening up conversation around future cues and later narrowing parts of that conversation into

formulations that can be rendered durable as inscription. What differentiates them most clearly is the form of practical knowledge they primarily mobilize.

The first of these pathways, *naming*, foregrounds the discursive side of practical knowledge. Participants repeatedly relied on compact labels and formulations to stabilize what a future cue or an emerging contribution was “about.” In both entry and canonical translation, such moves turned future cues into shared objects of discussion and, later, into formulations that could be inscribed on the canvas. This aligns with prior work showing how situated language organizes participation and crafts actionable meanings in interaction (Rouleau & Balogun, 2011), and how recognizable labels function as portable vocabularies across contexts (Abrahamson, 1996). What our findings add is that this discursive work was not evenly distributed across carried understandings. Participants oriented toward radical reconfiguration were more likely to draw on labels, metaphors, and business-model formulations with wider cross-industry resonance, whereas participants oriented toward contextual realism more often relied on a vocabulary socialized within the built environment sector’s own constraints, standards, and responsibilities. Naming therefore matters not only because it coordinates discussion, but because it shows how different carried understandings make some futures easier to condense into inscription.

Warranting, in turn, brings an evaluative and legitimacy-oriented dimension of practical knowledge into view. Participants continuously filtered future cues and emerging contributions through judgments of plausibility, responsibility, and fit. Future cues were rendered “not entirely unlikely,” proposals were adjusted to manage perceived risks, and formulations were judged in terms of whether they could reasonably be advanced and defended. This resonates with work on tacit knowing as embodied judgment shaped through experience (Polanyi, 1966), and with research showing how knowledge of sociocultural context shapes what counts as legitimate and defensible in a given setting (Rouleau & Balogun, 2011). Our findings sharpen this point by showing that such knowing is not merely a background condition. It becomes especially consequential when discussion is narrowed into durable output that can be collectively endorsed and inscribed. Warranting thus reveals how carried understandings enter future-making not only as ideas about the future, but as practical judgments about what can responsibly move forward.

Templating finally highlights the materially mediated dimension of practical knowledge. Participants worked with the future cue, the instructions, and the shared canvas as a structured representational environment. Contributions were shaped to fit available categories, positioned in relation to other elements, and reformulated to match the visual and spatial logic of the template. This supports prior work showing that knowing is materially mediated and becomes visible in how practitioners act with and through artifacts (Orlikowski, 2007; Nicolini, 2011), as well as research demonstrating how visual representations stabilize emerging understandings in future-making settings (Comi & Whyte, 2018; Whyte et al., 2022). In our case, templating makes

materially mediated knowing analytically visible at representational thresholds. It is through this work that future cues become not only discussable or defensible, but also inscribable.

Taken together, these pathways show that practical knowledge in future-making is not only enacted in the flow of interaction, but also carried into the situation and differentiated in how it becomes consequential. Naming makes future cues discussable, warranting renders them defensible, and templating makes them inscribable.

This allows us to make two related contributions to knowledge in future-making. First, the paper shows that practical knowledge in future-making should be understood as both enacted and carried. Although future-making research has expanded rapidly, relatively few studies have explicitly theorized practical knowledge in future-making (Wenzel et al., 2025). Within this still limited line of work, Thompson and Byrne (2022) offer the strongest account of enacted practical knowledge in the here and now by showing how discursive, embodied, and material doings are entangled in the situated production of imagined futures. Our study complements this account by making explicit how participants also enter future-making situations with different socially learned and embodied understandings that shape what becomes intelligible, plausible, and actionable in the first place (Cook & Brown, 1999; Bourdieu, 1977; Giddens, 1984).

Second, the paper offers a more explicit and empirically differentiated specification of what practical knowledge consists of in future-making. Rather than treating practical knowledge mainly as an abstract texture of situated activity, our findings show more concretely how different forms of practical knowledge become consequential at translation moments. In our material, this occurs through naming, warranting, and templating, which specify how future cues are framed, judged, and fitted to inscription. In this sense, the paper contributes not only by foregrounding carried understandings, but also by making the knowledge dynamics of future-making more analytically explicit.

How translation connects future-making practices

The findings also clarify how future-making practices connect through translation. A practice perspective argues that future-making is heterogeneous and relational rather than a single future-oriented technique or a static object of analysis (Wenzel et al., 2025). Our findings support that broader view, but also show more precisely how these qualities are accomplished. In our material, different future cues, carried understandings, interactional moves, and material arrangements became consequential for one another at representational thresholds, that is, at moments when participants had to move from opening up possibilities to producing inscription.

This helps specify what relationality means in our setting. Relationality did not only concern the fact that one activity followed another, or that discursive, bodily, and material elements were intertwined (Schatzki, 2002, 2012; Thompson & Byrne, 2022). It became visible more specifically when future cues were turned into shared topics for discussion and when discussion was turned into inscribable formulations on the canvas. Entry translation connected future cues to collective work, while canonical translation connected collective work to durable inscription. Translation therefore clarifies not simply that practices relate, but *how* they are made to relate in the course of future-making work.

Understanding how practices are made to relate also makes it possible to see how heterogeneity becomes consequential in the process in two related ways. First, participants carried different understandings of what the future was and how it could reasonably be approached. In this respect, the study supports prior work showing that futures differ not only in content but also in how they are represented and made graspable (Augustine et al., 2019). Second, the same three pathways — naming, warranting, and templating — recurred across the process, but in different forms depending on whether participants were opening up future cues for collective inquiry or narrowing discussion into durable output. Future-making was therefore heterogeneous not only because different futures were imagined, but because different practical resources became consequential at different thresholds in the process.

This also sharpens what a practice-based analysis can show about scale. As Nicolini (2010) argues, studying practice requires both zooming in on local accomplishment and zooming out to follow the connections through which local accomplishments become consequential beyond the immediate setting. Our study does both, but in a limited way. The interviews provide a first zooming out by showing the carried understandings through which future cues are made graspable before those cues enter workshop interaction. The workshop analysis then zooms in on how translation is accomplished in real time. What the material shows most clearly is therefore not how futures travel far beyond the setting, but how selected meanings are stabilized in inscription and prepared for use beyond the immediate turn-by-turn interaction. In this respect, the paper complements Pettit et al.'s (2023) process view of how imagined futures are transformed into action by showing, at a finer-grained representational level, how practices are connected through translation.

Taken together, this shifts the practice-based understanding of future-making in two related ways. It shows, first, that heterogeneity and relationality are not only broad characteristics of future-making, but ongoing accomplishments at representational thresholds. It shows, second, that the work of making futures stick depends not only on imagination or interaction alone, but on how future cues are translated into formulations that can be written down, stabilized, and revisited in the collective process.

These broader implications also mark the limits of what can be claimed from our study. While the findings clearly showed that carried understandings continued to matter within workshop interaction rather than disappearing once future-making became enacted, the study does not establish as directly how enacted knowing later sedimented into new carried understandings beyond this setting. Such a recursive relation remains plausible in light of practice-based theory, but it falls outside the direct empirical scope of the present study. An immediate direction for future research is therefore to examine more explicitly how future-making episodes may feed back into later carried understandings through longitudinal or multi-episode designs.

A second limit concerns what happens beyond the workshop itself. While the analysis shows how durable inscriptions are produced in and around the workshop setting, it does not systematically follow how these inscriptions are taken up beyond plenary reporting and into subsequent organizing. The study therefore identifies how durability is accomplished locally, but only the first visible step in how inscriptions may be carried further. Future research could extend this process view by tracing how inscriptions are later sustained, transformed, or dropped as they move into plenary reporting and subsequent organizational work.

A third limit concerns the specificity of the empirical setting. Because the analysis is grounded in one representationally organized workshop format, the findings should not be read as claiming that all future-making settings work through identical dynamics. This points to a further avenue for research: comparing how different templates, canvases, and visual-spatial formats shape the work of naming, warranting, and templating, and also examining breakdowns at translation moments more closely, especially when future cues fail to become shared topics for collective inquiry or when discussion fails to become inscribable.

Overall, the paper shows how imagined futures stick by becoming durable beyond the conversations in which they are articulated. It does so by explaining how practitioners open up discussion around future cues, how parts of that discussion are later narrowed into shared inscriptions, and how this process can be theorized as analytically related moments of translation. In this way, the study advances a practice-theoretic account of how future-making proceeds across representational thresholds. What gains durability, however, is not the “best” imagined future itself, but an inscription made durable enough to travel.

Overall, the paper shows how imagined futures stick in representationally organized future-making. They stick not because the “best” future wins out, but because discussion is translated into inscriptions that can be carried forward. In this process, practical knowledge matters as *both* carried and enacted: it shapes how future-oriented discussion is opened up, what can be

defended, and what can be rendered durable in written form. What sticks, then, is not the imagined future itself, but an inscription made durable enough to travel.

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