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Epistemic Intervention in Complex Systems: Rethinking Intervention Beyond Change Implementation

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Research Article

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Abstract

Interventions in organisational change are often understood as deliberate efforts to modify structures, behaviours, or outcomes. Such views frequently assume that the primary challenge lies in implementation, coordination, or resistance to change. This article proposes an alternative perspective by arguing that many difficulties in complex systems originate not only from organisational barriers but from epistemic conditions that shape what actors are able to perceive, interpret, and act upon.

The article introduces the concept of epistemic intervention *and explores the research question*: What characterises an epistemic intervention in complex systems, and how does it differ from traditional change interventions? *Drawing on complexity theory, systems thinking, action research, and empirical insights from municipal change initiatives, the article conceptualises intervention not primarily as an instrument for implementing predefined change, but as a process that alters conditions for knowing.*

The paper argues that epistemic interventions seek to expand interpretative capacity, increase systemic awareness, and support movement between alternative framings of complex situations. Rather than reducing uncertainty, they create conditions for reflection, reframing, and emergent learning. In this perspective, interventions may act less as mechanisms of control and more as catalysts for epistemic mobility.

The article develops a preliminary conceptual framework linking epistemic inertia, epistemic intervention, and epistemic mobility as interconnected dimensions of change processes in complex systems. The framework contributes to complexity-informed action research by repositioning intervention as an epistemic practice and offers implications for public sector development, particularly in politically governed and uncertain environments.

1 Introduction

Interventions occupy a central position in organisational development, change management, systems practice, and action research. Across these traditions, interventions are commonly understood as purposeful efforts intended to influence organisational structures, behaviours, processes, or outcomes. Whether expressed as change programmes, facilitation processes, learning activities, or systemic methods, interventions are often expected to support movement from a current state towards a desired future state.

Such assumptions become increasingly problematic in complex environments. In organisational contexts characterised by uncertainty, political dynamics, multiple perspectives, and emergent conditions, predefined goals and linear intervention logics often struggle to accommodate the evolving nature of the situation itself. Problems may shift during the intervention, stakeholders may hold fundamentally different interpretations, and desired outcomes may remain unclear or contested.

Research in complexity and systems thinking has repeatedly highlighted these limitations. Complexity-informed perspectives have challenged assumptions of predictability, control, and optimisation by emphasising emergence, contextuality, nonlinearity, and distributed sensemaking (Cilliers, 1998; Stacey, 1996; Snowden & Kurtz, 2003). In parallel, action research traditions have increasingly shifted attention from intervention as implementation towards intervention as learning, inquiry, and reflexive practice (Reason & Bradbury, 2008; Ison, 2017).

Despite these developments, interventions are still frequently treated primarily as mechanisms for changing organisational behaviour, structures, or performance. Less attention has been directed towards another possibility: that interventions may operate by transforming the conditions through which situations are perceived, interpreted, and understood.

This raises an alternative question. What if difficulties in organisational change are not only related to implementation problems, resistance, or competing interests, but also to stabilised ways of knowing that constrain how actors perceive complex situations?

This article explores this possibility through the concept of *epistemic intervention*. The concept is proposed as a way of understanding interventions that primarily seek not to impose predefined change, but to alter epistemic conditions within which actors make sense of reality. In this perspective, interventions become processes that disturb established interpretations, expose alternative perspectives, support reframing, and create opportunities for new forms of understanding and action.

The article addresses the following research question:

What characterises an epistemic intervention in complex systems, and how does it differ from traditional change interventions?

In municipal development contexts, interventions intended to improve implementation frequently generated another effect. Rather than producing immediate solutions, they altered how actors interpreted organisational situations, uncertainty, and interdependencies. In several situations, interventions appeared to shift how uncertainty, interdependencies, and organisational boundaries were interpreted. These observations motivated the present conceptual exploration.

The article draws upon complexity theory, systems thinking, and complexity-informed action research, together with empirical insights from municipal development initiatives. The ambition is not to present a new intervention method, but to develop a conceptual understanding of intervention as an epistemic practice.

The article contributes in three ways. First, it introduces the concept of *epistemic intervention* as a distinct analytical lens for understanding interventions in complex systems. Second, it proposes a conceptual relationship between *epistemic inertia*, *epistemic intervention*, and *epistemic mobility*. Third, it repositions intervention from an implementation-oriented activity towards an epistemic process that may support systemic awareness, learning, and emergent practice.

2 Intervention in Complexity and Systems Practice

2.1 Intervention Traditions and Their Underlying Assumptions

Intervention constitutes a foundational concept across organisational development, change management, systems practice, and action research. Although intervention traditions differ in methods and philosophical assumptions, many share an implicit orientation towards purposeful influence and intentional change.

Within organisational development and change management, interventions are often framed as activities designed to improve performance, align organisational structures, or facilitate transitions from existing states towards desired futures. Such interventions frequently rely on assumptions of diagnosable problems, identifiable goals, and relatively stable relationships between actions and outcomes.

In systems traditions, intervention has been understood more broadly. Soft Systems Methodology (Checkland, 1981), Critical Systems Thinking (Midgley, 2000), and systemic inquiry traditions have increasingly emphasised participation, multiple perspectives, and reflexive learning. Similarly, action research has moved beyond intervention as implementation towards intervention as collaborative inquiry and learning (Reason & Bradbury, 2008).

Despite these developments, interventions often remain oriented towards changing external conditions, behaviours, structures, or performance indicators. Less attention has been given to interventions that primarily seek to influence how situations themselves become knowable. This distinction becomes particularly important in complex environments.

2.2 Complexity and the Limits of Implementation Logics

Complex systems challenge many assumptions underlying conventional intervention approaches. In complex contexts, relationships between cause and effect are often non-linear, emergent, and only partially observable (Cilliers, 1998; Stacey, 1996). Problems may evolve during intervention processes, actors may hold conflicting interpretations, and interventions themselves may reshape the conditions they attempt to influence.

Consequently, predefined intervention models frequently encounter difficulties. Planning assumptions based on prediction, control, and optimisation may become insufficient when system dynamics remain uncertain or continuously changing.

Complexity-informed perspectives have therefore argued for alternative intervention logics emphasising adaptation, emergence, experimentation, and sensemaking (Snowden & Kurtz, 2003). Rather than seeking complete understanding prior to action, interventions may instead support exploration and learning while the situation unfolds. Within such perspectives, intervention increasingly becomes a process of inquiry rather than implementation.

A further dimension of complexity in organisational settings concerns the cognitive and cultural structures through which actors perceive and categorise situations in the first place. Complexity is not only a property of systems but is partly constituted by how those embedded within a system construct meaning under conditions of uncertainty. Research drawing on anthropology and cognitive science suggests that human pattern recognition, narrative reasoning, and culturally shaped categorisation tendencies significantly influence which aspects of a complex situation become visible, salient, or actionable (Snowden & Kurtz, 2003; Weick, 1995). Different professional communities, organisational roles, and institutional contexts may therefore encounter the same situation through fundamentally different interpretative lenses – not merely as a matter of preference or interest, but as a consequence of how cognition and culture shape perception itself.

This has a direct implication for intervention. If actors' ways of knowing are shaped by cognitive and cultural structures that operate largely beneath explicit awareness, then difficulties in complex change processes may be only partially explained by inadequate methods, insufficient information, or organisational resistance. A significant part of the difficulty may lie in the stability of interpretative structures that are rarely made explicit and therefore rarely available for deliberate examination. This suggests the need for an intervention logic that operates at the level of these structures rather than around them.

However, complexity perspectives often remain focused on uncertainty, emergence, and adaptation while paying less explicit attention to epistemic conditions themselves. Questions concerning how actors perceive, frame, and construct understanding frequently remain implicit. This suggests the need for a more explicitly epistemic perspective on intervention.

2.3 Epistemic Perspectives in Systems Thinking and Action Research

Epistemological concerns have long occupied central positions within systems thinking and action research traditions. Second-order cybernetics challenged assumptions of objective observation by emphasising the observer as part of the observed system (von Foerster, 1984). From this perspective, any act of intervention is simultaneously an act of knowing: the intervener participates in the system being intervened upon and cannot stand outside it as a neutral agent.

Systemic inquiry, as developed by Ison (2017) drawing on Checkland's (1981) Soft Systems Methodology, extends this position by treating interventions as processes of structured reflection in which assumptions, purposes, and relationships become objects of inquiry rather than taken-for-granted starting points. Systemic inquiry does not seek to optimise a system from outside but to develop understanding of how situations are being constructed by those involved. The intervention and the inquiry are inseparable.

Boundary critique, developed by Ulrich (1983) and extended by Midgley (2000), occupies closely related terrain. Boundary critique holds that all systems descriptions involve boundary judgements: decisions –

often implicit – about what is included and excluded, whose perspectives count, and what counts as relevant knowledge. These boundary judgements are never purely technical; they are normative and epistemic acts. Boundary critique as an intervention practice therefore involves making such judgements visible and opening them for critical examination. It seeks to expand the range of perspectives that shape how a situation is understood.

These traditions share a common epistemological orientation: knowledge is not a neutral representation of an objective situation but is shaped by the perspectives, assumptions, and boundaries through which situations become intelligible. Intervention, in this view, is always also an epistemic act.

Action research traditions have reinforced this position by emphasising knowing as situated, relational, and emergent rather than static and transferable (Reason & Bradbury, 2008). Reflection, participation, and inquiry become mechanisms not only for solving problems but for transforming understanding itself. Related ideas appear in sensemaking theory (Weick, 1995), reflective practice (Schön, 1983), and organisational learning traditions (Argyris & Schön, 1978).

Yet despite these developments, intervention itself is rarely conceptualised *explicitly* as an epistemic process. Systemic inquiry and boundary critique treat epistemic dimensions as important features of intervention, but they do not position the transformation of epistemic conditions as the *primary object* of intervention. Learning, reframing, and boundary expansion tend to appear as mechanisms or outcomes within a broader intervention logic rather than as the defining purpose of the intervention itself. This distinction creates a conceptual gap that the present article seeks to address.

2.4 Towards Epistemic Intervention

The preceding discussion suggests that many difficulties associated with organisational change may not originate solely from implementation failures, resistance, or inadequate methods. Difficulties may also emerge from stabilised interpretative patterns that constrain how actors perceive and engage with complex situations.

Such stabilisation may be understood as forms of epistemic inertia, where established assumptions, categories, and interpretative routines shape what becomes visible, meaningful, and actionable. From this perspective, intervention takes on a different role.

Rather than functioning primarily as mechanisms for implementing predefined change, interventions may operate by disturbing established interpretations, exposing alternative system perspectives, and supporting movement between different ways of understanding.

The concept of epistemic intervention is proposed to capture this orientation.

Epistemic interventions are here understood as interventions aimed not primarily at changing behaviour, structures, or performance, but at transforming the conditions through which situations are perceived, interpreted, and enacted.

This perspective positions intervention as an epistemic practice and creates the foundation for the conceptual framework developed in the following sections.

3 Conceptualising Epistemic Intervention

3.1 Epistemic Inertia in Complex Systems

Organisational actors do not encounter reality as neutral observers. Situations are interpreted through existing experiences, routines, categories, values, and institutional assumptions. These interpretative structures shape what becomes visible, relevant, and actionable.

Within stable environments such stabilisation may support coordination, efficiency, and predictability. In complex environments, however, the same mechanisms may become constraining.

Complex situations are often characterised by uncertainty, ambiguity, multiple perspectives, and evolving conditions. Yet actors frequently continue to interpret such situations through established frames developed under earlier circumstances. Existing assumptions remain active even when contextual conditions have changed. This stabilisation may be understood as *epistemic inertia*.

Epistemic inertia refers here to the tendency of individuals, groups, or organisations to reproduce established ways of knowing, interpreting, and acting despite changing conditions. Epistemic inertia does not imply irrationality or resistance in a conventional sense. Rather, it reflects the stabilising effects of existing epistemic structures.

In this perspective, many difficulties associated with organisational change may arise not because actors resist change itself, but because existing interpretative patterns limit what becomes conceivable. Complexity therefore introduces not only operational challenges but epistemic ones.

3.2 Defining Epistemic Intervention

Traditional intervention approaches often focus on changing behaviours, processes, structures, or outcomes. The primary object of intervention becomes external organisational conditions.

This article proposes an alternative orientation.

Epistemic intervention is defined as:

An intervention aimed not primarily at changing behaviour, structures, or performance, but at transforming the conditions through which situations are perceived, interpreted, and enacted.

The purpose of epistemic intervention is therefore not necessarily to produce immediate solutions but to create conditions for alternative forms of understanding. Such interventions may disturb stabilised interpretations, expose systemic plurality, support reframing, and expand interpretative capacity.

In contrast to implementation-oriented interventions, epistemic interventions do not assume that the problem is already adequately understood. Instead, they treat understanding itself as a central intervention target. Intervention thereby shifts from implementation towards inquiry.

This perspective aligns with complexity-informed action research traditions where intervention becomes an evolving process of exploration, reflection, and learning rather than a predefined change package.

3.3 Characteristics of Epistemic Intervention

Based on the preceding discussion, four preliminary characteristics of epistemic intervention are proposed.

3.3.1 Disruption of stabilised interpretations

Epistemic interventions disturb established assumptions and interpretative routines. Their purpose is not necessarily to replace one interpretation with another, but to create epistemic movement by revealing taken-for-granted assumptions. Disruption may occur through reflection, dialogue, visualisation, systemic methods, paradox exposure, or encounters with alternative perspectives.

3.3.2 Exposure to systemic plurality

Complex systems contain multiple legitimate perspectives simultaneously. Epistemic interventions seek to increase awareness of this plurality by exposing actors to alternative framings, relationships, and system boundaries.

This characteristic shares its epistemological roots with boundary critique (Ulrich, 1983; Midgley, 2000). Boundary critique holds that the boundaries drawn around a system – what is included, what is excluded, whose knowledge counts – are not neutral but reflect prior assumptions and power relations. Making these boundaries visible and contestable is itself an intervention into how a situation is understood. Epistemic intervention builds on this insight but extends it: where boundary critique focuses on the critical examination of boundary judgements as a normative practice, epistemic intervention is concerned more broadly with the conditions that make certain ways of knowing available or unavailable to actors in complex situations. The aim is not only to critique existing boundaries but to expand the interpretative space within which actors operate.

Systemic methods such as boundary critique, multiple stakeholder perspectives, or frameworks such as Cynefin may therefore function as epistemic artefacts – instruments that introduce plurality and make alternative system descriptions available for reflection (Midgley, 2000; Snowden & Boone, 2007). The objective is not consensus but expanded interpretative capacity.

3.3.3 Reframing rather than optimisation

Conventional interventions often seek improved solutions within existing frames. Epistemic interventions instead aim to transform the frame itself. The intervention focus shifts from

“What is the correct solution?” towards “How is the situation currently being understood?”. Reframing therefore becomes a central intervention mechanism.

3.3.4 Emergent rather than predefined outcomes

Epistemic interventions do not assume predetermined learning trajectories or fixed outcomes. Outcomes emerge through interaction, reflection, and contextual adaptation. Consequently, intervention success may not primarily be evaluated through implementation fidelity or predefined targets, but through expanded interpretative capacity and new possibilities for action.

3.4 From Epistemic Inertia to Epistemic Mobility

The concept of epistemic intervention creates a link between *epistemic inertia* and *epistemic mobility*. Epistemic inertia represents stabilised interpretative structures. Epistemic intervention introduces disturbances and opportunities for reframing. Epistemic mobility refers to movement between alternative ways of understanding and engaging with complex situations. Epistemic mobility therefore does not imply agreement or convergence. Rather, it reflects increased capacity to navigate between perspectives, reinterpret conditions, and adapt understanding to changing contexts. This relationship is illustrated in Fig. 1.

The framework suggests that intervention in complex systems may operate less through control and implementation, and more through transformation of epistemic conditions.

3.5 Conceptual Propositions

The conceptual model gives rise to the following propositions:

P1

Complex change processes may be constrained by epistemic inertia rather than only by organisational resistance.

P2

Epistemic interventions operate by transforming interpretative conditions rather than directly modifying behaviour.

P3

Exposure to multiple system perspectives may increase epistemic mobility.

P4

Epistemic mobility may support emergent forms of practice in complex environments.

P5

Epistemic interventions may increase systemic awareness by exposing actors to alternative boundaries, relationships, and perspectives.

4 Empirical Illustration from Municipal Development Practice

4.1 Context, Empirical Background, and Researcher Positionality

The empirical illustrations presented in this article originate from a series of complexity-informed development initiatives conducted within Swedish municipal settings over a period of approximately five years. The initiatives were embedded within broader organisational change processes in two municipalities, involving strategic development work, facilitated learning activities, and systemic interventions intended to support organisational reflection and systemic awareness in politically governed environments. The author participated in these initiatives as a practitioner-researcher, combining roles as facilitator, process consultant, and reflective inquirer across multiple intervention cycles.

Municipal contexts provide a particularly relevant setting for studying intervention in complexity. Such environments are characterised by multiple stakeholders, competing objectives, political influence, administrative structures, and continuously evolving conditions. Desired outcomes may be ambiguous, system boundaries contested, and intervention trajectories difficult to predict. These features render conventional implementation-oriented intervention logics particularly inadequate and make epistemic dimensions of change correspondingly salient.

The author's dual position as facilitator and researcher shaped both the interventions and the subsequent analysis. As a practitioner-researcher, the author was not a detached observer but a participant in the epistemic processes under study. This position carries methodological implications. The interpretation of intervention effects was shaped by participation in the same situations being interpreted. Analytical categories, including the concept of epistemic intervention itself, did not precede the fieldwork but emerged through sustained reflection on recurring patterns across multiple initiatives. This iterative movement between practice and conceptualisation is consistent with complexity-informed action research traditions in which knowing and intervening are inseparable (Reason & Bradbury, 2008; Ison, 2017).

The interventions discussed here were not originally designed to study epistemic intervention as a theoretical construct. Rather, they aimed to support organisational reflection and systemic understanding in response to concrete development challenges. Retrospective analysis, informed by complexity theory and systems thinking, revealed recurring patterns in which intervention effects appeared less connected to implementation outcomes and more associated with shifts in how participants understood and framed organisational situations. The concept of epistemic intervention was developed as a way of making sense of these patterns analytically.

The empirical examples therefore function as illustrative material supporting conceptual development rather than as confirmatory evidence for a pre-established theoretical model. This position is consistent with the role of empirical illustration in complexity-informed conceptual research, where the purpose is not hypothesis testing but the generation of analytically generative concepts grounded in practice (Cilliers, 1998; Stacey, 1996).

4.2 Intervention Through Epistemic Disturbance

In one municipal development initiative, participants initially framed recurring coordination difficulties as failures of implementation and role clarity. During facilitated reflection using Cynefin, discussions gradually shifted towards uncertainty, contextual dependencies, and competing system perspectives. The intervention did not immediately resolve the issue but altered how the situation was understood.

Several intervention situations involved introducing alternative system perspectives through facilitated workshops and reflective dialogue. One recurring intervention element consisted of visualising different types of situations using the Cynefin framework (Snowden & Kurtz, 2003). Rather than functioning as a diagnostic model, the framework was used as a conversational and reflective device. Participants were invited to discuss organisational challenges by exploring whether situations differed in character, predictability, and possible responses.

The intervention often produced immediate disturbances in established assumptions. Situations previously discussed as implementation problems were increasingly reframed as manifestations of complexity, uncertainty, or competing perspectives. Participants frequently shifted when perspective in dialogues. Such shifts represented more than methodological adjustment. The intervention altered interpretative conditions. Problems that had previously appeared self-evident became open for reinterpretation.

4.3 Exposure to Multiple System Perspectives

Another recurring pattern involved increased awareness of systemic plurality.

Municipal development processes frequently involved actors representing different organisational positions, political perspectives, and operational responsibilities. Initial discussions often reflected relatively stable interpretations linked to professional roles or administrative structures.

Interventions introducing systemic reflection frequently exposed alternative framings. For example, issues interpreted initially as failures of implementation were later discussed in terms of timing, contextual dependencies, political dynamics, or emergent system effects.

Participants increasingly recognised that several interpretations could coexist simultaneously. Importantly, intervention outcomes were not characterised by convergence towards one shared understanding. Instead, the interventions appeared to increase tolerance for plurality. The practical effect was not consensus but expanded interpretative space.

4.4 Reframing and Emerging Practice

In several cases, intervention effects extended beyond reflection and influenced subsequent organisational practices. Participants reported changes in how meetings were conducted, how problems were discussed, and how uncertainty was approached. Questions shifted from solution optimisation towards exploration and inquiry.

Examples included:

- increased use of reflective dialogue before decision-making;
- greater acceptance of uncertainty in development initiatives;
- more explicit discussions concerning assumptions and perspectives;
- adaptation of intervention strategies over time.

These changes rarely followed predefined intervention plans. Instead, practices emerged gradually through interaction and reflection.

From an epistemic perspective, the most significant intervention effect may therefore not have been implementation of specific methods, but transformation of how situations became understood. Two orientations of intervention in complex systems is illustrated in Fig. 2.

4.5 Empirical Implications

The empirical illustrations suggest that intervention effects in complex environments may occur through mechanisms different from those commonly assumed in traditional change approaches.

The observed changes were not primarily behavioural, structural, or procedural. Instead, intervention effects appeared linked to altered interpretative conditions. Three empirical implications emerge:

1. Interventions may create change by disturbing stabilised interpretations.
2. Exposure to multiple perspectives may increase epistemic mobility.
3. Emergent organisational practices may follow epistemic shifts rather than precede them.

These observations support the conceptual proposition that intervention in complex systems may operate through epistemic mechanisms.

5 Discussion

5.1 Repositioning Intervention in Complex Systems

The concept of *epistemic intervention* proposed in this article suggests an alternative way of understanding intervention in complex environments.

Conventional intervention perspectives often focus on influencing behaviours, structures, processes, or outcomes. Although such approaches remain valuable, the findings and conceptual arguments developed here indicate that intervention effects in complex systems may also emerge through transformation of epistemic conditions. This implies a repositioning of intervention.

Rather than viewing intervention primarily as implementation of predefined change, intervention may be understood as a process that influences how situations become knowable. The distinction is important because complex environments frequently involve uncertainty, plurality, and evolving conditions where the problem itself remains unstable.

Under such circumstances, difficulties may arise not only from implementation challenges but from limitations in prevailing interpretative frames. Intervention therefore becomes connected not merely to action, but to knowing.

5.2 Epistemic Intervention as Systemic Practice

The proposed perspective aligns with several traditions within systems thinking while simultaneously extending them. Second-order cybernetics questioned assumptions of detached observation by positioning the observer within the observed system (von Foerster, 1984). Similarly, systemic inquiry traditions have emphasised reflexivity, boundary judgements, and the situated character of knowledge (Checkland, 1981; Ison, 2017). The proposed perspective also aligns with broader systems traditions emphasising pluralism and methodological complementarity within systems practice (Jackson, 2003).

Epistemic intervention shares affinities with reflective practice (Schön, 1983), sensemaking (Weick, 1995), and systemic inquiry (Ison, 2017), yet differs by positioning transformation of epistemic conditions as the primary intervention object.

This distinction deserves elaboration. Systemic inquiry (Ison, 2017) and boundary critique (Ulrich, 1983; Midgley, 2000) both treat epistemic dimensions as central to intervention: systemic inquiry foregrounds the assumptions and purposes shaping how situations are understood, while boundary critique makes visible the normative choices embedded in how system boundaries are drawn. Epistemic intervention shares this orientation but differs in one significant respect: it positions the *transformation of epistemic conditions* as the primary and explicit object of the intervention, rather than as a mechanism in service of some other outcome such as improved decision-making, boundary expansion, or participatory design. The intervention is not directed at the organisational situation through epistemic means; it is directed at the epistemic conditions themselves. This shift – from intervention that is epistemically informed to intervention that is epistemically targeted – is what the concept of epistemic intervention is proposed to capture.

Midgley's (2003) argument that science itself constitutes a form of systemic intervention, in which disciplinary boundaries and knowledge claims are subject to the same critical scrutiny as the systems being studied, resonates with this position and situates it within a broader rethinking of what it means to intervene in complex situations.

Intervention is no longer viewed only as a means for change. Instead, it becomes a mechanism through which epistemic conditions may be altered.

This shift contributes to systems practice by making explicit what often remains implicit, namely that interventions may operate through changes in interpretation rather than only through changes in organisational arrangements.

From this perspective, methods, frameworks, and facilitation processes may be understood as *epistemic artefacts*. Their value lies not only in producing solutions but in expanding interpretative possibilities.

5.3 Relations Between Epistemic Inertia, Mobility and Intervention

The article proposed a conceptual relationship between epistemic inertia, epistemic intervention, and epistemic mobility. The framework suggests a dynamic sequence:

stabilised interpretation → epistemic disturbance → reframing → mobility → emergent practice.

The relationship is not intended as a deterministic model. Complex systems rarely evolve through linear mechanisms. Instead, the framework should be understood as an analytical lens supporting exploration of how intervention effects emerge.

The model proposes that interventions may function by creating disturbances within established interpretative structures. Such disturbances may open possibilities for movement between perspectives and thereby support new forms of practice.

The framework also creates a conceptual bridge to previous work on *epistemic mobility* by introducing intervention as a possible mechanism explaining how epistemic movement becomes possible.

In this sense, epistemic intervention may be understood as a catalyst for epistemic mobility and extends earlier conceptual work by exploring intervention as a possible enabling mechanism.

5.4 Implications for Action Research

The concept of epistemic intervention also carries implications for complexity-informed action research. Action research has increasingly moved from intervention as implementation towards intervention as collaborative inquiry, reflexivity, and learning (Reason & Bradbury, 2008). The present work extends this movement by proposing that intervention itself may constitute an epistemic practice. This perspective shifts attention from *"What intervention should be implemented?"* towards *"What conditions shape how the situation is currently understood?"*.

The empirical context described in this article illustrates what this shift entails in practice. The author's role across the municipal development initiatives was not that of an external designer applying a predetermined method. It was a role shaped by continuous adjustment, reframing, and learning in

response to emerging conditions. Facilitation became a form of inquiry. The frameworks and methods introduced – including Cynefin as a conversational device – were not applied as tools for producing correct answers but as epistemic artefacts intended to disturb established interpretations and open space for alternative framings. This mirrors what second-order cybernetics positions as the inseparability of observer and observed (von Foerster, 1984): the researcher participates in the epistemic conditions under study and cannot stand outside them.

This has a consequential implication for how the researcher's role is understood in complexity-informed action research. Rather than functioning primarily as designer or facilitator of change, the researcher operates as a co-participant in processes of epistemic exploration and reframing. The researcher brings frameworks, provokes questions, and introduces alternative perspectives – but the direction of understanding that emerges is not predetermined. Outcomes arise through interaction rather than through implementation.

This position carries an inherent methodological tension that warrants acknowledgement. When the researcher is also the practitioner, and when the conceptual framework emerges retrospectively from practice, the analysis risks confirming what the researcher was already inclined to see. The response to this tension is not to claim neutrality – which second-order perspectives rightly reject – but to make the interpretative position explicit and to treat the resulting concepts as provisional and open to revision. The framework proposed in this article should therefore be read as a practitioner-researcher's attempt to render visible a pattern that may be generative for others, rather than as a definitive account of how epistemic intervention works.

Intervention thereby becomes less associated with control and more associated with inquiry. This resonates with the broader trajectory of complexity-informed action research, where interventions evolve together with context and understanding, and where the researcher's knowing is always already entangled with the situation being known.

5.5 Limitations and Future Research

This article represents an initial conceptual exploration. The empirical illustrations serve primarily as analytical examples rather than confirmatory evidence. Future research may therefore explore epistemic interventions in different organisational settings and examine how epistemic mechanisms unfold empirically over time.

Several questions remain open.

- How can epistemic interventions be designed?
- How may epistemic mobility be empirically observed?
- Under what conditions does epistemic intervention contribute to organisational learning?
- How do political structures, organisational cultures, and contextual dynamics influence epistemic processes?

These questions suggest a broader research agenda concerning intervention, complexity, and epistemic change.

6 Conclusion

This article explored the concept of *epistemic intervention* as an alternative perspective on intervention in complex systems.

The point of departure was that interventions in organisational development and change are frequently understood as efforts to influence behaviours, structures, processes, or outcomes. While such perspectives remain valuable, they may be insufficient in complex environments characterised by uncertainty, plurality, and evolving conditions.

The article proposed that interventions may also operate through transformation of epistemic conditions. Based on this perspective, *epistemic intervention* was defined as interventions aimed not primarily at changing behaviour or organisational arrangements, but at transforming the conditions through which situations are perceived, interpreted, and enacted. The conceptual analysis further suggests that epistemic interventions operate through disturbance of stabilised interpretations, exposure to systemic plurality, reframing processes, and support for emergent learning.

The article further proposed a conceptual relationship linking *epistemic inertia*, *epistemic intervention*, and *epistemic mobility*.

This relationship suggests that intervention in complex systems may function less through implementation and control, and more through transformation of interpretative conditions.

The contribution is therefore threefold.

First, the article introduces *epistemic intervention* as a conceptual lens for understanding intervention in complexity-informed systems practice.

Second, it proposes a preliminary framework connecting epistemic inertia, intervention, and mobility.

Third, it repositions intervention from an implementation-oriented intervention practice towards an epistemic practice.

This repositioning does not replace existing intervention traditions. Rather, it adds an epistemic dimension that may help explain how new understandings and emergent practices become possible in complex environments.

The concept remains preliminary and requires further empirical exploration. Nevertheless, it suggests that one important function of intervention in complex systems may not be to reduce uncertainty, but to expand the conditions for knowing.

Declarations

Clinical trial number: not applicable. There was no funding for this study.

Author Contribution

Clas Mellby is the sole author of this manuscript and is responsible for all aspects of the work, including conceptualisation, theoretical development, methodology, empirical fieldwork, formal analysis, writing of the original draft, and review and editing of all subsequent versions.

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Figures

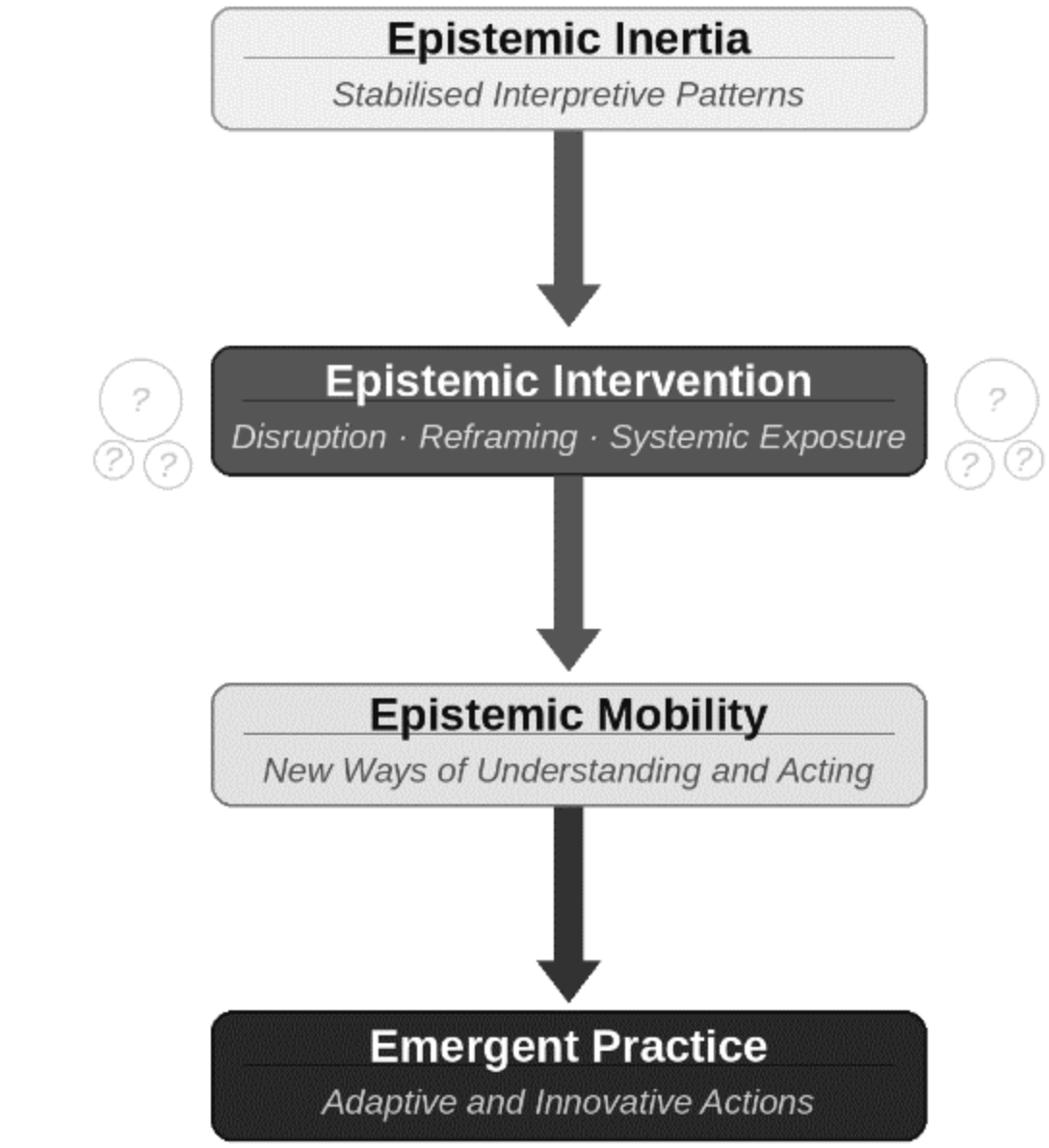


Figure 1

Epistemic intervention in complex systems. Source: Author

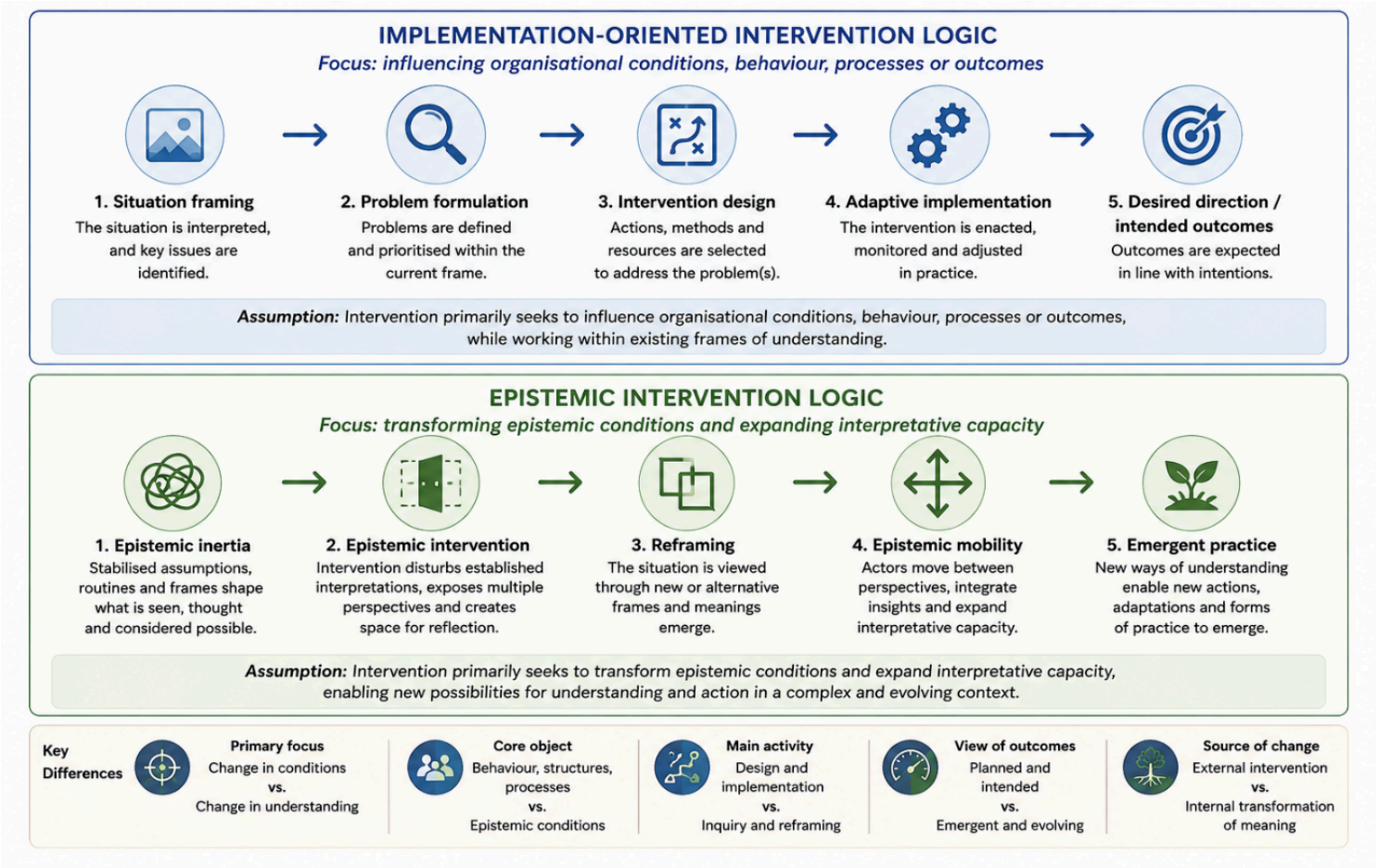


Figure 2

Two orientations of intervention in complex systems. Source: Author