

# The ethical friction deficit: rethinking contestability in entrepreneurial technology governance

Sid Ahmed El Hebri Harid   
Golden Gate University, San Francisco, California, USA

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## Abstract

**Purpose** – This paper aims to develop the Ethical Friction Deficit (EFD) to explain a distinct ethical risk in technology-enabled entrepreneurial organizations: the loss of designed points at which consequential decisions can be contested before they become action, as digital systems relocate judgment from a deliberative to an executable register.

**Design/methodology/approach** – This conceptual paper builds an analytical framework by integrating literature on organizational friction, responsible innovation, design ethics and entrepreneurial decision-making, distinguishing the construct from adjacent concepts and anchoring the argument in a stylized illustrative case of automated workforce scoring.

**Findings** – The paper defines the EFD as the gap between the pre-execution contestability a decision ethically requires and the contestability actually available, specifies a register-shift mechanism through which technology raises the social cost of contestation, grounds the construct's normative value and identifies four diagnostic manifestations with matching governance mechanisms. It positions power as an antecedent, amplifier and condition of effective intervention without displacing the central mechanism.

**Practical implications** – Organizations should not add friction indiscriminately. They should design contestability around decisions characterized by high irreversibility, scale or automaticity, where digital certainty can convert judgment too quickly into execution.

**Originality/value** – The paper develops a practitioner term into a governance construct by theorizing its mechanism and boundary conditions and by distinguishing the deficit of contestability from friction itself, offering entrepreneurial organizations a way to preserve contestability without sacrificing speed.

**Keywords** Ethical friction, Technology governance, Entrepreneurship ethics, Digital decision-making, Responsible innovation, Organizational accountability

**Paper type** Conceptual paper

## 1. Introduction

Entrepreneurial organizations are often organized around speed. Rapid decision-making, fast experimentation and the ability to scale are treated not only as competitive advantages but as defining virtues and digital technologies intensify this orientation: dashboards, scoring systems, automated approvals and algorithmic recommendations compress the distance between a decision and its execution.

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This compression has an underexamined ethical consequence. When the distance between decision and action shrinks, so too can the space in which ethical judgment occurs. The pauses, objections and accountability checks through which moral reasoning normally enters organizational decisions are precisely the kind of “friction” that entrepreneurial organizations are incentivized to remove – yet some of that hesitation is how an organization notices, before acting, that a technically efficient decision may be morally weak.

This paper develops the Ethical Friction Deficit (EFD) to name and theorize this risk: the absence of designed points at which a technology-enabled decision can still be contested before it becomes action. In entrepreneurial organizations where speed, growth and efficiency are highly valued, digital systems may unintentionally remove those points by accelerating decisions while making them appear cleaner and more objective than they are.

The term “ethical friction” is not novel: practitioner writers use it for deliberate “speed bumps” in high-stakes decisions (Sutton and Rao, 2024) and human-computer interaction research explores designing with friction (Cox *et al.*, 2016). What has not been developed is a governance-level account of how technology-mediated decisions shift from a deliberative to an executable register, when a friction point counts as ethical rather than bureaucratic and how entrepreneurial organizations might preserve contestability without sacrificing speed. This paper offers that account. It theorizes the deficit of contestability as an organizational governance construct, distinct from the friction itself and from organizational silence and related questions of organizational visibility and transparency; it does not claim to solve responsible technology governance but offers a lens for identifying where entrepreneurial technology governance loses ethically necessary contestability and for designing against that loss.

## 2. Ethics, entrepreneurship and technology governance

As digital systems take on a larger role in organizational decision-making, the question is no longer only whether a technology is used for legitimate ends, but whether the organization retains the capacity to exercise moral judgment over the decisions those systems shape. Recent research highlights both the growing ethical significance of technology-enabled entrepreneurship and the role of temporal commitments, external pressures and constrained structures in shaping entrepreneurial action (Uriarte *et al.*, 2025; Wood *et al.*, 2024).

Three features make entrepreneurial organizations structurally exposed. These features do not merely make such organizations faster; they make the contestation of fast decisions more socially costly. The claim is not that entrepreneurial organizations are the only sites of ethical friction deficits, but that their defining conditions make such deficits more likely to form, quicker to form and less visible once formed:

- (1) *First, the speed ethic.* In entrepreneurial settings, speed carries a moral and identity charge: to be fast is to appear agile, competitive and committed, whereas delay can read as bureaucratic or weak. Where speed functions as a marker of entrepreneurial virtue, pausing to question a decision may be read less as diligence than as a failure of commitment, so the social cost the register shift imposes on contestation (Section 5.2) is amplified by the very identity through which entrepreneurial action is valued.
- (2) *Second, resource and attention scarcity.* Entrepreneurial organizations often operate with less formalized compliance, ethics and review infrastructure than established firms, so ethical judgment depends on informal, easily eroded moments rather than durable structures.
- (3) *Third, technological leverage.* Digital tools multiply the reach of small teams, but the same leverage means a single unexamined assumption embedded in a system can propagate at scale before anyone questions it.

Taken together, the three features compound: a moralized speed ethic discourages questioning, scarce review infrastructure limits its institutionalization and technological leverage lets an unchallenged decision propagate widely before it is reconsidered. It is their combination, not any single feature, that makes entrepreneurial organizations distinctively exposed. This is consistent with responsible-innovation scholarship (Stilgoe *et al.*, 2013), entrepreneurship ethics under uncertainty and resource pressure (Hannafey, 2003) and developing-economy research identifying technical/business, interpersonal, conceptual and entrepreneurial skills as components of entrepreneurial leadership (Harrison *et al.*, 2018).

### 3. Existing views of friction

Friction is not a new concept and the contribution here depends on distinguishing the EFD from three existing strands. A first strand treats friction as productive: constructive confrontation and the meeting of different perspectives generate innovation rather than impede it (Hagel and Brown, 2005) and well-placed friction protects organizations from their own haste (Sutton and Rao, 2024). Its orientation, however, is performance – innovation, decision quality, effectiveness – whereas the EFD concerns contestability as a normative condition: whether a morally consequential decision can be challenged on moral grounds before it becomes action.

A second strand, the closest existing terrain, comes from human–computer interaction and design ethics. Against the assumption that good design is seamless, a growing body of work argues for designing with friction to support reflection, privacy, security and autonomy, treating its addition or removal as an ethically loaded choice and connecting to value-sensitive design (Friedman *et al.*, 2013) and a “turn to practice” in design ethics (Gray and Chivukula, 2019; Shilton, 2018). Its level of analysis is the interface and interaction. The EFD operates at the level of organizational governance: its object is the placement of contestability points within a decision chain, not the design of an interaction. The two are complementary – interface-level frictions can implement governance-level intentions, but governance-level contestability cannot be reduced to interface design (a distinction developed in Section 7).

A third, recent strand uses “ethical friction” directly, advocating deliberate “speed bumps” – cooling-off periods, “second set of eyes” rules, pre-mortems, embedded ethics checks – on the premise that capable people make poor moral calls when rushed and that time pressure is a documented risk factor for ethical fading (Tenbrunsel and Messick, 2004). This strand names the phenomenon but does not theorize it: it specifies neither the mechanism by which technology erodes ethical friction, nor the boundary conditions distinguishing it from bureaucratic obstruction, nor its place in the speed–responsibility tension of entrepreneurial technology governance.

Taken together, these literatures establish that friction can be productive, designed and ethically purposeful, but they do not theorize its absence as an organizational governance deficit. This paper occupies that interstice by defining the Ethical Friction Deficit, specifying its register-shift mechanism and identifying the conditions under which friction preserves pre-execution contestability.

### 4. Defining the ethical friction deficit

#### 4.1 Definition

*The EFD is the gap between the level of pre-execution contestability ethically required by a consequential technology-enabled decision and the level of contestability – the practical capacity to challenge, suspend or revise that decision – actually available before it becomes operationally embedded.*

Two elements carry weight. First, the deficit concerns designed contestability, not incidental delay: whether the organization has deliberately placed points at which a decision can be challenged, suspended or revised, not whether decisions happen to be slow. Second, it is defined relative to execution: ethical friction intervenes while a decision is still open to challenge, not after its consequences have materialized. So defined, the deficit covers both the erosion of previously available contestability and its absence from the outset. It follows that the EFD is neither the absence of bureaucracy nor the presence of speed: an organization can be fast with a low deficit if it has placed contestability at the decisions that matter and slow and bureaucratic with a high deficit if its delays create no moment of moral questioning. The unit of analysis is the technology-mediated decision chain, not the individual actor or the interface.

This paper later characterizes ethical friction as “ethical infrastructure.” The term already exists in the behavioral-ethics literature, where it denotes the broad apparatus of codes, climate and surveillance supporting ethical conduct (Tenbrunsel *et al.*, 2003); the present use is narrower – friction as one specific, often-overlooked element of that infrastructure, the element that preserves contestability before action.

#### *4.2 Distinguishing the construct from adjacent concepts*

Because the construct shares vocabulary with several existing ideas, explicit demarcation is necessary. Table 1 distinguishes it from organizational silence, voice and psychological safety, organizational visibility and transparency, automation bias, human oversight, contestable AI, algorithmic accountability and bureaucracy. In each case the point is not that the neighboring concept is wrong or reducible to a single mechanism, but that none isolates the particular combination the EFD names.

Three demarcations matter most. Human oversight concerns presence; the EFD concerns capacity – whether anyone retains authority to suspend or revise before execution. Contestable AI and algorithmic accountability locate challenges across the lifecycle or before a forum; the EFD isolates whether a consequential output remains practically interruptible before it becomes embedded. Voice and psychological safety are the most easily conflated with contestability, yet a chain staffed by people who feel safe to speak and who do speak can still exhibit a deficit: once a decision has shifted into an executable register, expressed voice may carry no structural power to suspend or revise it. Speaking is not the same as being able to stop. Remedying silence calls for voice mechanisms; remedying the deficit calls for the deliberate placement of governed contestability points in the decision chain. Accordingly, the EFD predicts that two organizations may display comparable levels of voice, psychological safety and human oversight yet differ materially in ethical governance if only one retains empowered pre-execution interruption points. This discriminating prediction provides an empirical basis for separating the construct from adjacent concepts.

#### *4.3 Why pre-execution contestability has ethical value*

Why should pre-execution contestability be treated as an ethical concern rather than mere prudence? The claim is bounded: contestability is not a freestanding moral good but an enabling procedural capacity, in whose absence several organizational values are placed at risk. Four connections make this concrete.

*Prospective organizational responsibility* is strengthened by an interruptible moment: to hold an organization responsible is to assume the decision could have been otherwise, that a reason could have been demanded and a course altered before consequences followed.

**Table 1.** Distinguishing the ethical friction deficit from related concepts

| Concept                                                                    | What it primarily concerns                                                                                  | What the EFD adds                                                                                                                                              |
|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Organizational silence<br>(Morrison and Milliken, 2000)                    | Why actors withhold voice – including through structural and climate barriers, not merely individual choice | A structural, designed interruption of the decision chain, independent of whether any individual is willing to speak                                           |
| Voice/psychological safety<br>(Van Dyne and LePine, 1998; Edmondson, 1999) | Whether members can and will raise concerns                                                                 | Voice may be exercised without power to alter an output already shifted into an executable register; the deficit persists even under high psychological safety |
| Organizational visibility/transparency                                     | What information becomes visible, legible or safely reportable within the organization                      | A visible decision can still be uncontestable; visibility is not contestability                                                                                |
| Automation bias<br>(Skitka et al., 2000)                                   | Why individuals over-trust system outputs                                                                   | The deficit can exist even where no one is biased, because no structural contestation point was designed                                                       |
| Human oversight<br>(Siebert et al., 2023)                                  | Whether a human is involved and in what role – including authority commensurate with control                | Presence is not capacity: a human may be involved yet hold no authority to suspend or revise before execution                                                  |
| Contestable AI<br>(Alfrink et al., 2023)                                   | Whether a decision can be questioned, across the system lifecycle                                           | The organizational loss of effective contestability specifically before execution, when challenge can still prevent embedding                                  |
| Algorithmic accountability<br>(Busuioc, 2021)                              | Who must answer and how, before a forum – including ex ante duties                                          | Whether anyone could still intervene before action, not only who accounts for it afterward                                                                     |
| Bureaucracy                                                                | How actions are controlled through rules                                                                    | Delay is not contestability; a long approval chain with no empowered challenger has a high deficit                                                             |

Where no such moment exists, responsibility persists in name, but its practical *locus* becomes hard to identify.

*Accountability* is strengthened by what contestability preserves. Accountability requires giving reasons and answering before a forum (Busuioc, 2021); when the chain retains no point at which reasons, objections and ownership are recorded, later accountability becomes reconstructive rather than genuinely answerable – an account demanded after execution can arrive too late and empty.

*Procedural fairness* requires a proportionate channel to be heard: those affected have a recognized interest in questioning the criteria applied to them and seeking revision before a decision hardens into an outcome and people judge legitimacy partly through the fairness of the process, not only its outputs (Colquitt et al., 2001).

Contestability also preserves a bounded form of procedural autonomy: affected persons are not treated merely as objects of system output when they retain a genuine opportunity to question the criteria applied to them before the decision becomes operationally embedded.

*Harm prevention* is most fragile precisely where contestability is most easily lost: the structurally risky classes of decision – irreversibility, scale, automaticity (Section 5.4) – are those in which an unexamined assumption propagates furthest and is hardest to undo.

Contestability is thus a necessary procedural capacity, not a sufficient condition of ethical governance. Its value lies in answerability: the condition under which a technology-enabled decision remains, for as long as it can still be altered, a matter for which the organization can

be asked to account. This also disciplines the argument – not every interruption qualifies as ethical friction (Section 5) and the remedy for a deficit is not generalized caution but the targeted placement of contestability where these values are most exposed (Sections 7 and 8). In short, contestability earns its ethical standing as the procedural capacity through which responsibility, accountability, fairness and harm prevention remain reachable before a decision becomes an operational fact.

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## 5. When is friction ethical? Mechanism and boundary conditions

If every delay is called ethical friction, the concept collapses into bureaucracy. Ethical friction is not delay in itself but a designed opportunity for morally relevant questioning before a technology-enabled decision becomes consequential – a point of contestability at the moment when speed, automation or digital certainty would otherwise move a decision directly from system output to action. Throughout, we use a stylized illustrative case: a security firm deploying automated workforce scoring across distributed sites, combining attendance, incident reports, patrol records and supervisor evaluations to rank agents and trigger managerial action. Such a system can improve consistency, but a low score can quickly become a disciplinary signal and a dashboard pattern can be treated as reality. The ethical question is whether the organization has designed points at which the score, its assumptions and its consequences can be questioned before action follows.

### 5.1 *Ethical and other forms of friction*

Not all friction is ethical. Ethical friction is a designed moment of contestation that makes a decision answerable to human scrutiny before it becomes action. It is distinct from bureaucratic friction (delay from rules that do not improve judgment or accountability and may weaken it by dispersing ownership), political friction (obstruction protecting positions or reputations rather than stakeholders) and operational friction (delay from poor coordination or system failure). These may coexist – a review committee can create genuine questioning while adding bureaucratic burden – so the test is not the category but whether a given friction point actually improves contestability, accountability and ethical judgment. The defining feature is contestability: a friction point is ethical only when it lets a decision be questioned on morally relevant grounds before implementation.

### 5.2 *Contestability and the register-shift mechanism*

The primary boundary condition is contestability: a necessary condition of ethical governance is that a consequential decision remains challengeable before it produces consequences. This matters especially under technology because digital systems transform managerial decisions into outputs that appear neutral or automatic. But the deeper mechanism is not speed as such; it is the transformation of a decision from a deliberative register into an executable one. In a deliberative register a decision is treated as a matter of judgment – debated, challenged, revised. In an executable register it appears as an output to be implemented: the system has calculated, ranked, approved or flagged and human actors shift from judgment to execution, the question changing from “Should we do this?” to “How do we implement what the system produced?”

Technology-enabled acceleration can compress deliberative time, but it matters here only insofar as it facilitates or intensifies the register shift; it is a contextual condition rather than a separate causal stage. This shift matters less in tempo than in the changed social status of contestation. Once a decision is framed as system output, questioning it carries a social cost it did not carry before: a manager who challenges the score appears subjective while the system appears objective; an agent who contests it appears defensive while the dashboard appears

factual. This is the core of the mechanism – technology can erode ethical friction not by forbidding contestation but by raising its social price. The EFD occurs when organizations allow this shift without preserving structured points at which judgment can still intervene.

### 5.3 *Power and the distribution of contestability*

Contestability is not distributed evenly and its distribution is governed by power. Whether a decision can be challenged, suspended or revised depends not only on whether a contestation point exists but also on who can use it, at what cost and with what likelihood of effect. Entrepreneurial organizations may concentrate this authority to an unusual degree: a founder or small team often controls strategy, capital, data and the systems through which decisions are made, reinforced by dependence on investors and dominant clients. The person best placed to contest a decision may be the one whose position or funding depends on not contesting it. Concentrated ownership thus operates as an antecedent, shaping the conditions under which the register shift occurs and narrowing who can realistically contest.

Power also amplifies once the shift has occurred, through a distinction the framework must make explicit: the right to speak is not the same as the authority to stop. An organization may grant voice while withholding any real authority to suspend or revise. Where challenge rights are distributed asymmetrically, suspension authority rests with those who own the system and objecting carries a credible risk of retaliation, the social cost the register shift imposes is magnified. Low psychological safety, mistrust and dependency do not themselves constitute the deficit; they are the channels through which power asymmetry raises the cost of contestation, so that a challenge right granted to someone who cannot safely exercise it provides the appearance of contestability without its substance.

Within the model, power occupies three analytically distinct positions. First, concentrated decision authority is an antecedent that shapes who controls the technologies and the conditions under which the register shift occurs. Second, dependency, retaliation risk and asymmetric challenge rights amplify the social cost of contestation after the shift. Third, authority to suspend or revise determines whether a formal intervention point is effective rather than symbolic. None of these roles replaces the register shift as the central mechanism: the register shift explains how a contestable judgment becomes an output presumed to require execution, while power explains who can contest, at what cost and with what effect. Treating power in this distributed way keeps the construct distinct from a general theory of organizational power while acknowledging that in practice the two are entangled.

### 5.4 *Exposure-scaling criteria, proportionality and boundary conditions*

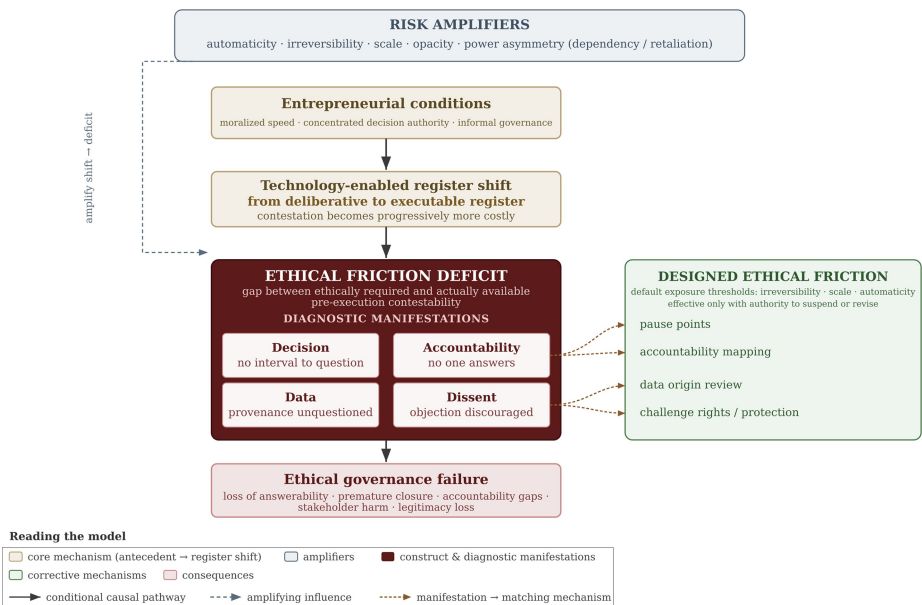
Proportionality raises a difficulty: if friction is needed because organizations may fail to perceive risk in time, it cannot depend only on already-visible risk. The framework therefore uses three exposure-scaling criteria for classes of decisions likely to carry ethical significance even when no harm is yet visible: irreversibility (decisions difficult to reverse, correct or appeal – in the example, termination or permanent records), scale (a rule minor in one site becoming significant across dozens) and automaticity (decisions triggered or enforced without human judgment being formally removed). These criteria do not constitute independent causal triggers of the EFD. They perform a dual governance function: crossing a relevant threshold activates a default friction point *ex ante*, while their degree calibrates the intensity of that friction because it magnifies the ethical exposure created when required contestability is unavailable. In the model, they therefore appear both as activation criteria for Proposition 4 and as amplifiers of the register-shift-to-deficit relationship in Proposition 3. Opacity and power asymmetry amplify that relationship but do not, in this framework, independently activate the default rule. Initial friction intensity is set *ex ante* according to this

structural exposure and recalibrated ex post through governance learning, as organizations review whether their friction points are excessive, insufficient or misplaced after decisions produce outcomes.

A friction point qualifies as ethical only when five conditions are met: it intervenes while the decision is still open to challenge; it creates meaningful contestability (someone can question the decision, its data, assumptions or accountability); it preserves human responsibility rather than displacing it onto systems; it attaches to structurally risky classes of decision rather than depending on whether managers already perceive a problem; and it improves ethical judgment rather than merely adding procedural burden. These five conditions are qualifying boundary conditions: they determine whether an interruption counts as ethical friction rather than bureaucratic, political or operational drag. They define the deficit's conceptual limits: not the absence of bureaucracy, but the absence of designed contestability – best remedied not by more friction everywhere but by better friction where it structurally warrants it (Section 8). They are analytically distinct from exposure-scaling criteria, which determine where a default friction point is warranted and how strongly it should be calibrated.

6. The ethical friction deficit model

The preceding sections assemble into a process model (Figure 1). It reads as a conditional pathway, not a deterministic sequence; each arrow is a tendency that designed friction can interrupt. Entrepreneurial conditions create pressure for faster technology-enabled decision-making, but acceleration is a contextual condition rather than a separate stage of the model.



Each arrow represents a tendency, not a determinism. The four diagnostic manifestations locate where contestability is lost; each is addressed by the corrective mechanism to its right.  
Power spans the model: concentrated authority (antecedent), dependency / retaliation (amplifier), and suspension / revision authority (efficacy condition).

Figure 1. Conceptual model of the ethical friction deficit  
Source: Author's own work

The central mechanism is the technology-enabled register shift: a consequential decision comes to be treated as an executable output rather than a deliberative judgment, raising the social and organizational cost of contestation. The EFD is the resulting gap between ethically required and actually available pre-execution contestability; left unaddressed, it produces diagnostic manifestations and may culminate in governance failure. Risk amplifiers – irreversibility, scale, automaticity, opacity and power asymmetry – strengthen the register-shift-to-deficit relationship, while designed ethical friction interrupts it.

Four propositions formalize the model. They are conceptual propositions among constructs, not empirically calibrated hypotheses:

- P1.* In entrepreneurial organizations, the moral valuation of speed increases the likelihood that technology-enabled decisions are treated in an executable rather than a deliberative register.
- P2.* The earlier in a decision chain a consequential technology-mediated decision shifts from a deliberative to an executable register, the greater the resulting ethical friction deficit, even where formal challenge mechanisms are present, because the shift increases the social and organizational cost of using those mechanisms rather than removing them.
- P3.* The relationship between register shift and the EFD is strengthened as irreversibility, scale and automaticity increase and by opacity and power asymmetry.
- P4.* Default ethical friction points activated when decision classes cross relevant exposure thresholds – defined by irreversibility, scale or automaticity – reduce the EFD without requiring prior perception of specific moral risk.

## **7. Four diagnostic manifestations**

The deficit is not monolithic; it manifests in four forms, each a point at which contestability is lost and each addressed by a different governance mechanism. A decision friction deficit arises when execution is too fast to be questioned at all – an automatic rule reassigns an agent below a threshold with no intervening review. An accountability friction deficit arises when responsibility is displaced onto “the system,” so the decision has effects but no owner and no addressee for any challenge. A data friction deficit arises when the data underlying a decision are used without their origin, quality or assumptions being questioned – incident reports of uneven quality aggregated into a score treated as objective. A dissent friction deficit arises when objection is structurally discouraged: the organization may permit dissent while making it socially expensive, which may approach functional removal where no protected route to intervention exists. These are not mutually exclusive; a single chain can exhibit several and remedying the deficit requires identifying which form is present.

## **8. Friction-by-governance mechanisms**

Remedying the deficit means designing contestability back in, at the level of governance rather than interface. Unlike friction-by-design, friction-by-governance decides where in the decision chain speed should be interrupted so that responsibility can enter. Several mechanisms follow, each mapping onto one or more manifestations. Ethical pause points impose a mandatory interval before an ethically exposed decision executes, reopening the question “should we?” and principally addressing the decision deficit. Human challenge rights grant specified actors the formal right to question, pause or escalate before a decision acts, making contestation a right rather than insubordination and addressing the dissent

deficit; dissent protection is their cultural counterpart, ensuring that objecting is not career-limiting. Accountability mapping assigns a named human owner to classes of automated decision, addressing the accountability deficit; experimental work finds that holding actors accountable for accuracy reduces over-reliance on automated outputs (Skitka *et al.*, 2000). Data-origin review opens the provenance and assumptions of underlying data to question, addressing the data deficit. Pre-execution review places a structured checkpoint between output and action for decisions meeting the exposure-threshold criteria and ex post calibration treats proportionality as learning, preventing friction from ossifying into the bureaucracy it is meant to avoid. None requires the organization to become slow: each is targeted, applying friction only where exposure warrants it, so that friction-by-governance is a steering mechanism rather than a brake – reframing friction as ethical infrastructure that keeps technology answerable to human judgment.

9. Practical implications: from exposure to designed friction

The framework helps an organization locate where contestability is most at risk and respond proportionately. Table 2 makes the connection between the four diagnostic manifestations and their corresponding exposure conditions explicit: the decision friction deficit maps to moralized speed and compressed timelines; the accountability friction deficit to concentrated decision ownership; the data friction deficit to weak data provenance; and the dissent friction deficit to dependency and retaliation risk. The exposure conditions are observable situations through which the manifestations become visible, not additional dimensions of the EFD. For each pairing, Table 2 identifies the contestability at risk, an observable diagnostic and the matching governance mechanism (Section 8).

The four rows operationalize these pairings rather than introduce new dimensions of the construct. Their severity is modulated by the risk amplifiers – irreversibility, scale, automaticity, opacity and power asymmetry: the same exposure warrants a lighter response when a decision is reversible and local and a stronger review when it is automatic, large-scale or irreversible. The first three also serve as exposure-scaling criteria that activate and calibrate default friction points (Section 5.4); opacity and power asymmetry affect calibration but do not independently activate the default rule. Proportionality is thus a scaling rule, not a fifth category.

Table 2. From exposure to designed ethical friction

| Diagnostic manifestation and exposure condition                      | Contestability at risk              | Observable diagnostic                                  | Designed ethical friction                             |
|----------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------|-------------------------------------------------------|
| Decision friction deficit – moralized speed and compressed timelines | Capacity to suspend                 | No legitimate interruption points before execution     | Mandatory pause point or escalation threshold         |
| Accountability friction deficit – concentrated decision ownership    | Effective challenge/ accountability | Objections can be voiced but cannot alter the decision | Independent challenge authority; named decision owner |
| Data friction deficit – weak data provenance                         | Capacity to revise on evidence      | Inputs cannot be traced or questioned before use       | Data-origin review and provenance requirement         |
| Dissent friction deficit – dependency and retaliation risk           | Capacity to dissent safely          | Concern is discouraged, delayed or privatized          | Protected challenge channel; anti-retaliation rule    |

Designed ethical friction is therefore not a general demand for slower decision-making but a proportional response that concentrates interruption and challenge where scale, automaticity, irreversibility or power asymmetry make unexamined execution hardest to reverse – reserving contestability for the few decisions whose exposure makes it most costly and leaving the majority to move quickly. Its cost is concentrated rather than diffuse, which makes it affordable for resource-constrained organizations: a blanket review requirement imposes delay everywhere and ossifies into bureaucracy, whereas a targeted regime imposes delay only where the exposure conditions are present. The costs are real – decision delay, review fatigue and the risk that challenge channels are gamed – but targeting concentrates them where exposure justifies them. The design task is thus not whether to introduce friction, but where to introduce designed ethical friction and which mechanism the exposure requires. The vignette is deliberately mundane, but the same structure recurs in higher-stakes domains. In fintech, the relevant friction point may be a mandatory review before an automated credit freeze or fraud classification becomes binding; in health-tech, it may be a challenge checkpoint before an algorithmic triage ranking materially shapes access to urgent care. In both cases, the issue is not merely whether a human remains somewhere in the process, but whether an empowered actor can still suspend or revise the output before its consequences become embedded.

## 10. Discussion

The framework contributes to four conversations. To technology ethics, it locates ethical risk not only in the misuse of technology but also in excessive decision fluidity: responsible-innovation capacities such as anticipation and reflexivity (Stilgoe *et al.*, 2013) require moments at which a decision is still open to question and it is those moments the deficit removes. To entrepreneurship research, it recasts the speed-versus-caution tension as a design problem: responsible entrepreneurship is not the rejection of speed but the disciplined identification of the few points where speed must be interrupted. To technology governance, it distinguishes friction-by-design from friction-by-governance and complements algorithmic accountability (Busuioc, 2021) by shifting attention to whether contestability exists at all before execution, since an account demanded afterward arrives too late. To organizational decision-making, it contributes the register-shift mechanism: technology changes not merely the speed of decisions but their social status, eroding ethical friction through the rising social cost of contestation rather than outright prohibition.

### 10.1 Complementary explanations

The construct does not compete with accounts of why individuals stay silent or defer; it operates at the level of the decision chain rather than the disposition of actors and its relation to four adjacent explanations is complementary. Psychological safety (Edmondson, 1999) makes people more willing to raise concerns, but willingness to speak is not the structural capacity to interrupt (Section 4.2). Silence and voice (Morrison and Milliken, 2000; Van Dyne and LePine, 1998) explain communicative behavior, not the architecture of the chain; an organization with high voice can still exhibit a deficit if expressed concern reaches no interruption point. Power (Section 5.3) governs the distribution and effectiveness of contestability; within this framework it is treated as an antecedent, amplifier and condition of effective intervention rather than as the proximal register-shift mechanism. Automation bias (Skitka *et al.*, 2000) explains cognitive deference but is not identical to the deficit, which can exist even among skeptical actors when the chain provides no point at which skepticism can take effect. Each explains why actors may refrain from contesting; the EFD explains how the

chain reduces the capacity to contest before execution. The distinction matters for intervention: cultural remedies and structural remedies address different problems and an organization that pursues only the former may preserve voice into a chain that has already removed the point at which speaking could make a difference.

### *10.2 Limitations and research agenda*

The framework is conceptual; its propositions are offered for future investigation and the illustrative case is a stylized example, not a case study. The exposure-scaling classification requires judgment, which the framework relocates to governance design rather than eliminating. Applicability to large bureaucracies, where the pathology may be excess friction rather than deficit, is left for further work. Future research could operationalize the deficit by comparing required and available contestability through workflow logs, override records, escalation and approval histories, exception data, interviews and survey measures of challenge, suspension and revision capacity; comparative and longitudinal designs could test whether the deficit is more prevalent under concentrated authority, high automaticity and strong growth pressure and whether targeted pause and challenge mechanisms reduce governance failures without imposing generalized delay.

## **11. Conclusion**

Entrepreneurial organizations are right to value speed, but speed and seamlessness carry an ethical cost that is easy to miss because it takes the form of an absence – of the pauses, objections and accountability checks through which moral judgment enters a decision before it becomes action. This paper has named that absence the Ethical Friction Deficit, theorized how technology produces it through a shift from a deliberative to an executable register and specified when friction counts as ethical rather than mere drag. The central reframing is that certain forms of organizational friction are not obstacles to innovation but ethical infrastructure: when technology-enabled organizations remove it, they do not merely move faster; they lose the capacity to be answerable for what they do. The challenge is not to slow every decision but to ensure that ethically exposed decisions remain meaningfully contestable before they become executable.

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### **Data availability**

Not applicable; this is a conceptual paper and no primary data were generated or analyzed.

### **Prior publication**

This manuscript is original, is not under consideration elsewhere and has not been published previously.

### **Generative AI statement**

During the preparation of this work the author used an AI model for language editing and formatting assistance. The author reviewed and edited the content and takes full responsibility for the substance, arguments and final wording of the manuscript.

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**Corresponding author**

Sid Ahmed El Hebri Harid can be contacted at: [sid@harid.me](mailto:sid@harid.me)