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The Deployment Chasm

Why Enterprise Technology Collapses at the Gemba — and How to Build for the Terrain

A Forensic Anatomy of Four Decades of Enterprise Technology
(from ISO 9000 and SAP to Generative AI)

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Cover: Caspar David Friedrich, The Sea of Ice (1824), Hamburger Kunsthalle

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CHAPTER 1: THE FORTY-YEAR ARC: FROM ISO 9000 AND SAP TO GENERATIVE AI

ART CURATION RECORD — CHAPTER 1



Chapter 1: The Parable of the Blind, Pieter Bruegel the Elder (1568)

- **Work:** *The Parable of the Blind* (*De parabel der blinden*)
- **Artist:** Pieter Bruegel the Elder (1568)
- **Technique and Dimensions:** Tempera on canvas (*tempera tüchlein*), 86 × 154 cm
- **Current Location:** Museo di Capodimonte, Naples, Italy
- **Semiotic Reading and Rationale for Selection:**
  The work renders with starkness the biblical passage from Matthew (15:14): *"And if one blind man guides another, both will fall into the pit"*. Bruegel arranges six blind men along a descending diagonal path; the leader has already fallen backward into a ditch of muddy water; the second stumbles over him, dragging down the third; and the last three advance with confident hesitation toward the same inevitable destination.

Author / Essayist	Date	Central Diagnosis	What They See Clearly	The Critical Blind Spot	Doctrinal Correction of This Monograph
Tim Hawke	Oct 1, 2025	*Crossing the AI Chasm*: documentary governance and centralized repository.	Regulatory requirements (EU AI Act); need for traceability of corporate processes.	Documentary fallacy of ISO 9000: assumes that writing the process in a repository makes the plant operate according to the document.	Confuses the map with the terrain: the repository becomes a ceremonial facade while the plant operates on Excel spreadsheets.
Daron Acemoglu	Aug 12, 2026	*So-so automation* (Acemoglu and Restrepo, 2019): AI adopted on the bandwagon displaces work but adds little productivity.	Direction decides the return: new tasks built with the workforce, not labor sidelined; firms adopt without knowing how to integrate AI. Macro ceiling: §6.2.4.	Measures the damage in productivity and jobs; does not follow the cut into the record, where fewer people are left to resolve the same exceptions.	So-so automation is a direction error, not a deployment failure, but it feeds one: cutting the people who resolve exceptions without lowering the exception rate pushes bypass pressure above 1 (§1.6), and the bandwagon decision ends as dirty data.

1.6 The Three Seams and the Bypass Pressure Equation

The synthesis of these four decades allows formalizing the Deployment Gap as a three-dimensional vector:

$$\boldsymbol{G} = (G_s,\ G_f,\ G_i)$$

1. **The Semantic Seam (G_s):** The ontological distance between the categories of the material master and those of the physical product (cases, packs, pallets, conversion factors and equivalences). It is measured by the fraction of transactions that require human interpretive intervention.
2. **The Physical Seam (G_f):** The spatiotemporal discrepancy between the physical event at the dock and its transactional record in the ledger. It is measured by the latency distribution, the retry rate and the corrections made after closing.

3. **The Institutional Seam (G_i):** The contradiction between what the software measures and what the salary compensation structure rewards. It is measured by the correlation between floor workarounds and the collection of bonuses.

The Bypass Pressure Mechanism (B)

The three seams couple into an implacable mathematical regularity `[M]`. Let λ be the rate of physical transactions per shift, p_e the probability that a transaction encounters a material exception that the software cannot resolve automatically, h the human resolution rate per person and n the number of operators or supervisors available to resolve exceptions:

$$B = \frac{\lambda p_e}{h n}$$

- **Sub-Critical Stationary Regime ($B < 0.80$):** The exception queue is ergodic ($B < 1$) and maintains waiting times compatible with the carrier's window. Physical perturbations are formally absorbed within the legal procedure.
- **Critical Zone of Stochastic Congestion ($0.80 \leq B < 1$):** Although mean capacity still exceeds mean arrival, at a real dock with bursty truck arrivals (squared coefficient of variation $c_a^2 > 1$), Kingman's approximation for $G/G/c$ queues dictates that the mean waiting time in queue scales according to $W_q \propto \frac{B}{1-B}\left(\frac{c_a^2 + c_s^2}{2}\right)$. Between $B = 0.80$ and $B = 0.95$, the delay per exception jumps from minutes to tens of minutes, triggering preventive workarounds *before* crossing the deterministic threshold $B = 1$.
- **Supercritical Divergence Regime ($B \geq 1$):** For $B = 1$ under non-zero variance the queue lacks a stationary distribution; for $B > 1$, the net excess of unresolved exceptions grows linearly at the exact rate $\lambda p_e - hn = \lambda p_e \left(\frac{B-1}{B}\right)$ `[M]`, deterministically forcing diversion toward informal workarounds in order to avoid the physical paralysis of the dock.

Design Consequence: Reducing operational support staff ($n \downarrow$) after implementing "automated" software without reducing the physical error rate (p_e) drives $B > 1$, mathematically deterministically inducing the birth of dirty data and the ceremonial falsification of the system.

Operationalization: how B is measured in a week of Intake. An equation that cannot be estimated with plant data is rhetoric. The four parameters are measured as follows during the first days of the protocol in Chapter 6: λ is counted at the gate and not in the system (physical receptions per shift); p_e is obtained from the exception log of the last twelve months, normalized per thousand receptions; h is estimated by timing twenty real exceptions with the operator who resolves them; and n is the staffing effectively available for exceptions on the shift, not the nominal headcount. With those four numbers, B is recalculated every week; if it exceeds 1 for two consecutive weeks, the queue is growing, the workaround is a matter of time and the deployment must be stopped before writing to the ERP.

1.7 Selection Bias: The Mean, the Tail and the Deployments That Did Work

All the evidence accumulated in this chapter shares an uncomfortable methodological property: it was selected by its outcome. The collapses are public, litigable and journalistically profitable; the deployments that work are silent, routine and invisible. A hostile reviewer has the right to formulate the gravest objection a sample can receive: selection bias. A doctrine built exclusively on autopsies runs the risk of describing the anatomy of the corpse and presenting it as the anatomy of the species.

The objection admits two forms, and both deserve an answer before continuing.

First form: the mean contradicts the thesis. The econometric literature does not document an average failure of enterprise technology; it documents modest gains with extreme variance. Hendricks, Singhal and Stratman (2007) `[D]` estimated an abnormal positive ROA of 1.8% to 3.2% after ERP implementations in listed companies. Corbett, Montes-Sancho and Kirsch (2005) `[D]` and Levine and Toffel (2010) `[D]` found abnormal improvements in profitability and in safety after ISO 9000 certification, not the ceremonial deterioration that the narrative of this chapter suggests. And Bloom, Garicano, Sadun and Van Reenen (2014) `[D]`, on a sample of manufacturing plants in Europe and the United States, found that ERP adoption is associated with **greater** autonomy of the plant manager: it is communication technology —not transactional technology— that concentrates decisions. A thesis that affirms without nuance that “enterprise technology fails” is refuted by these three results.