

The Role of Process Fit in ERP Implementation Success

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Abstract

Enterprise resource planning (ERP) systems promise integrated, standardized processes, yet high failure rates persist. A central and recurrent cause identified in the literature is the misfit between the rigid, vendor-embedded process logic of standard ERP packages and the distinctive operational processes of adopting organizations. This research note synthesizes the academic literature on organizational and process fit, the spectrum of ERP tailoring options, and the risks associated with both excessive rigidity and uncontrolled customization. Drawing on foundational work (Davenport, 1998; Soh et al., 2000; Hong & Kim, 2002; Brehm et al., 2001) and more recent systematic reviews, the note establishes that the capacity to adapt system flows—through configuration and controlled, selective customization—to firm-specific processes is a critical success factor. Conversely, systems that impose excessive process rigidity elevate the probability of implementation failure, workarounds, and unrealized benefits. Implications for manufacturing and discrete industries are discussed.

Keywords: ERP implementation, process fit, organizational misfit, customization, system rigidity, critical success factors, manufacturing

1. Introduction

Standard ERP packages embed “industry best-practice” process models. While this standardization can deliver integration and efficiency gains, it simultaneously creates structural tension with organizations whose competitive advantage or operational reality depends on distinctive workflows. The literature has long recognized that the inability to reconcile this tension—either by adapting processes to the system or adapting the system to processes—is among the principal drivers of ERP project failure (Davenport, 1998; Markus & Tanis, 2000). Failure rates reported across academic and practitioner sources commonly range from 50 % to 75 %, with process and functional misfits repeatedly cited as primary contributing factors.

This note reviews the state of the science on two interrelated questions: (1) how important is the ability to adjust ERP process flows to the particular operating model of a firm, and (2) under what conditions does system rigidity become a decisive weight in implementation failure? The review draws exclusively on peer-reviewed academic sources and selected high-quality industry studies.

2. Conceptual Foundations: Misfit and Rigidity

Davenport (1998) articulated the core dilemma in his influential Harvard Business Review article: enterprise systems impose their own logic on strategy, organization, and culture. Because major code modifications are “impracticable,” most companies must rework their processes to fit the system. When competitive advantage derives from process distinctiveness, this imposed logic can destroy rather than create value.

Soh, Kien, and Tay-Yap (2000) formalized the problem as “misfits”—gaps between package functionality and organizational requirements—categorized into data, process, and output misfits. They demonstrated that the issue is especially acute when packages designed around Western industry models are applied in different cultural or regulatory contexts, and that organizations face a constrained set of resolution strategies: adapt the organization, live with the shortfall, invent workarounds, or customize the package.

Hong and Kim (2002), in a field survey of 34 organizations published in *Information & Management*, provided one of the earliest empirical confirmations that ERP implementation success “significantly depends on the organizational fit of ERP.” Their work established organizational fit as a measurable critical success factor and showed that both system adaptation and process adaptation moderate the relationship between fit and project outcomes.

3. The Spectrum of Tailoring and Its Trade-offs

Brehm, Heinzl, and Markus (2001) mapped the practical continuum of ERP tailoring options, ranging from pure configuration (parameter setting without code change) through intermediate techniques (user exits, workflow programming, bolt-ons) to full code modification. They emphasized that each step up the spectrum increases implementation risk and, critically, the difficulty and cost of future upgrades—creating long-term technical debt.

Subsequent work has reinforced that “vanilla” implementations are not universally superior. Light (2005) argued that customization decisions are not solely technical responses to functional misfits; they are also shaped by organizational politics, power relations, and stakeholder interests. Excessive customization, however, is consistently associated with higher failure risk. Practitioner analyses (including Gartner surveys of Japanese firms) indicate that when customized functionality exceeds approximately 20 % of the system, the probability of schedule overrun rises by roughly 10 percentage points and budget overrun by 14–15 percentage points relative to lower-customization projects.

4. Empirical Evidence Linking Fit and Outcomes

Gattiker and Goodhue (2005) in *MIS Quarterly* demonstrated that plant-level performance benefits of ERP are contingent on the degree of interdependence among plants and on the extent of process differentiation. Where differentiation is high, the standardization imposed by a single ERP instance can reduce rather than improve local performance—illustrating the cost of rigidity at the operational level.

More recent systematic reviews confirm the persistence of the problem. Jegorova and Grabis (2025), synthesizing peer-reviewed studies from 2005 to 2025, conclude that system-organizational misfits remain a primary cause of elevated failure rates and that the literature still lacks robust empirical comparisons of alternative resolution strategies (process adaptation versus system adaptation). Industry surveys continue to report that 55–75 % of ERP projects fail to meet original business objectives, with over-customization and process incompatibility appearing among the top-cited root causes (typically 20–25 % of failure attributions).

5. Implications for Manufacturing and Discrete Industries

In manufacturing environments—particularly discrete and project-based production such as joinery and custom fabrication—process variation is often a source of competitive advantage rather than inefficiency. Rigid standard flows that cannot accommodate engineering-to-order sequences, variable routing, or customer-specific quality checkpoints generate precisely the misfits identified by Soh et al. (2000) and Hong & Kim (2002). The literature implies that organizations in these sectors benefit from platforms that prioritize configurability and selective, controlled adaptation over pure standardization. Systems that force either wholesale process redesign or heavy code modification elevate both short-term implementation risk and long-term maintenance burden.

6. Conclusions

The accumulated evidence supports three propositions. First, organizational and process fit is a statistically and practically significant determinant of ERP implementation success (Hong & Kim, 2002; Gattiker & Goodhue, 2005). Second, the capacity to adjust system flows to firm-specific processes—primarily through configuration and disciplined, selective customization—is necessary when process distinctiveness contributes to competitive advantage. Third, both extremes are costly: pure rigidity that ignores material process differences, and uncontrolled code-level customization that exceeds roughly 20 % of functionality, both elevate the probability of schedule and budget overruns and of incomplete benefit realization.

For organizations evaluating or implementing ERP, the literature therefore recommends early, structured fit-gap analysis focused on process (not merely functional) alignment, explicit governance of customization decisions, and preference for platforms whose architecture supports process adaptation without code modification. Future research should quantify the performance differential between high-configurability and high-rigidity implementations within the same industry contexts.

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