

The Need for HR-Led Workforce Readiness Assessments in Digital Transformation: Identifying Hidden Barriers Beyond Digital Skills

Gihan Shiwantha Warnakulasuriya

Atlas Axillia Company Pvt Ltd

gihanshiwantha@gmail.com

Abstract: This study examines the need for HR-led workforce readiness assessments in ERP-driven digital transformation, with particular emphasis on spreadsheet dependency as a hidden barrier to system adoption. Although ERP implementation failures are frequently attributed to technical and change management issues, limited attention has been given to the behavioral risks associated with employees' long-standing reliance on spreadsheet-based work practices. Using a practitioner-reflective case study approach, this paper draws on observations from seven ERP implementation projects across manufacturing and service sector organizations in Sri Lanka over a ten-year period. The findings reveal a counterintuitive pattern in which employees with high spreadsheet proficiency, rather than those with low digital literacy, demonstrated the strongest resistance to ERP adoption. These employees frequently maintained shadow systems, relied on parallel spreadsheet environments, and delayed post-go-live stabilization, thereby undermining the intended benefits of enterprise integration. In response, the paper proposes an HR-led Workforce Readiness Assessment framework incorporating an Excel Dependency Audit to identify workforce-related risks during the pre-implementation stage. Furthermore, the study introduces the Digital Workforce Readiness Index (DWRI), a structured diagnostic framework designed to measure workforce readiness across dimensions including spreadsheet dependency, system adoption readiness, digital literacy, and process standardization acceptance. The paper argues that integrating HR into early ERP planning can improve implementation realism, support targeted change management interventions, and reduce adoption-related delays. The study contributes to the growing discourse on the strategic role of HR in digital transformation and offers practical implications for ERP project teams and organizational change practitioners.

Keywords: *Change Management, Digital Workforce Readiness Index (DWRI), ERP Implementation, HR in Digital Transformation, Spreadsheet Dependency Audit.*

Background

Digital transformation has emerged as a strategic imperative across industries, with Enterprise Resource Planning (ERP) systems serving as a cornerstone technology in organizational modernization efforts. These implementations promise integrated data management, standardized processes, and enhanced operational efficiency. However, despite significant investments in technology and project management, ERP implementations consistently encounter delays and stabilization challenges that extend well beyond initial projections.

A review of ERP implementation literature consistently highlights technical complexity, change management deficiencies, and limited user adoption as primary drivers of project delays (Somers and Nelson, 2004; Nah et al., 2001). Notably absent from much of this discourse is the behavioral dimension of workforce readiness, specifically the extent to which employees' established work practices, particularly dependency on spreadsheet-based tools, may constitute a hidden yet significant barrier to successful transformation.

In most organizations, early-stage digital transformation decisions, including implementation scope, system selection such as greenfield, brownfield, or bluefield approaches, and project timelines, are driven by IT and finance functions. The Human Resources (HR) function is rarely involved in this planning stage, despite HR's unique insight into workforce behavior, organizational culture, and change readiness (Ulrich et al., 2012). This exclusion means that workforce-related risk factors go unassessed until they manifest as adoption resistance, parallel workaround systems, or post-go-live data inconsistencies.

This paper addresses this gap by presenting practitioner-observed evidence from multiple ERP implementations across diverse Sri Lankan industries. It argues that spreadsheet dependency, particularly Microsoft Excel reliance, constitutes a significant but underappreciated risk factor in ERP adoption, and that HR should play a strategic role in pre-implementation workforce readiness assessments to mitigate this risk.

Research objectives

This study is guided by the following objectives:

- To examine the behavioral patterns of employees during ERP implementation, with particular focus on spreadsheet dependency as a hidden barrier to system adoption.
- To identify the profile of employees most likely to generate adoption resistance in ERP-driven digital transformation programs, based on cross-case practitioner observation.
- To propose an HR-led pre-implementation Workforce Readiness Assessment framework, incorporating an Excel Dependency Audit, to surface workforce-related risks prior to ERP planning.
- To introduce the Digital Workforce Readiness Index (DWRI) as a structured diagnostic tool that enables organizations to quantify workforce readiness and integrate HR insights into ERP transformation planning.

Literature Review

ERP implementation challenges and workforce factors

ERP implementation failures and delays are extensively documented in academic and practitioner literature. While technical and vendor-related factors attract significant research attention, growing evidence suggests that human and organizational factors are equally, if not more, determinative of implementation success (Markus and Tanis, 2000; Kumar et al., 2003).

User resistance is among the most cited human-side challenges. Resistance to ERP adoption has been linked to perceived loss of autonomy, disruption of established workflows, inadequate training, and poor change management communication (Boonstra, 2006). However, the specific mechanism of resistance rooted in legacy tool dependency, particularly deep proficiency in spreadsheet environments, has received comparatively limited scholarly attention.

Spreadsheet dependency and shadow systems

Spreadsheet tools, particularly Microsoft Excel, have long been integral to organizational data management and reporting processes. Caulkins et al. (2007) describe Excel as a ubiquitous shadow IT tool that employees use to replicate, extend, and personalize enterprise data outside formal systems. While this flexibility enables individual productivity, it simultaneously creates parallel data environments that fragment organizational information integrity.

The concept of shadow systems, referring to unofficial data management tools maintained outside sanctioned enterprise systems, has been studied primarily in the context of IT governance (Behrens & Sedera, 2004). However, the human behavioral dimension, specifically the psychological attachment of skilled spreadsheet users to their personal data environments and resistance to surrendering control to standardized ERP processes, has not been adequately explored as a pre-implementation risk factor.

Strategic HR role in digital transformation

The evolving mandate of HR in organizational transformation has been articulated in strategic HRM literature, with scholars arguing for HR's involvement beyond traditional administrative functions (Ulrich et al., 2012; Boxall and Purcell, 2016). In the context of digital transformation, HR's role encompasses change management facilitation, capability building, and cultural alignment (Kane et al., 2019). Despite this recognized mandate, HR's involvement in ERP project planning remains limited in practice. This paper builds on this literature to argue for a formalized, data-driven HR contribution at the pre-implementation stage.

Methodology

This paper adopts a practitioner-reflective case study approach grounded in the tradition of insider research, where the researcher draws on direct professional involvement as the primary source of evidence (Coghlan and Brannick, 2014). This approach is appropriate given the exploratory and conceptual nature of the study, which seeks to surface patterns across real-world ERP implementation experiences rather than test a predetermined hypothesis.

This study is based on direct professional involvement in seven ERP implementation projects in Sri Lanka across manufacturing and service sectors over approximately ten years. The researcher contributed roles including implementation consulting, change management facilitation, and user training design, enabling sustained first-hand observation across multiple contexts. Data was collected through structured reflective practice, focusing on employee behavior during key phases such as pre-implementation planning, configuration workshops, user acceptance testing, and post-go-live stabilization, with particular attention to tool usage, workaround practices, and resistance patterns.

A thematic cross-case analysis was conducted by comparing observations across all cases to identify recurring behavioral trends influencing ERP adoption. To maintain confidentiality, all organizations are anonymized, and while the study acknowledges limitations such as potential observer bias and lack of formal quantitative data, these are mitigated through cross-case comparison and the use of illustrative DWRI scoring to provide preliminary empirical grounding.

The case organizations are summarized in Table 1 below.

Table 1: Summary of ERP Implementation Case Organizations

Organization Code	Sector	ERP System	Prior System Status	Years in Business	ERP Experience Profile
Company A	Cable Manufacturing	IFS	First ERP implementation	12	First-time adopter
Company B	Liquor Manufacturing	SAP	Second ERP (prior system: partial MRP coverage)	98	Experienced ERP user
Company C	Industrial Glove Manufacturing	SAP	First ERP implementation	30	First-time adopter
Company D	Automobile / multi-disciplinary	SAP	Second ERP (prior system: partial dealer management)	80	Experienced ERP user
Company E	Printing and Packaging	Axpert	First ERP implementation	45	First-time adopter
Company F	Coconut-Based Growing Media	Acumatica	First ERP implementation	9	First-time adopter
Company G	Stationery Manufacturing	SAP	Second ERP (prior system: partial legacy ERP coverage)	70	Experienced ERP user

Source: Author's own compilation based on implementation experience. Organization names are anonymized to preserve confidentiality.

Findings and Discussion

The counterintuitive resistance pattern

Across all seven ERP implementation cases, a consistent and counterintuitive pattern was observed. Initial planning assumed that employees with low digital literacy, particularly operational and blue-collar staff, would be the primary barrier to system adoption, leading to training and mitigation efforts being focused on them. However, in practice, these employees demonstrated relatively strong adaptability when supported with structured training and clear process guidance, largely because they had limited attachment to existing tools. In contrast, the most significant resistance emerged from experienced white-collar employees with high proficiency in spreadsheet-based work, particularly in functions such as finance, procurement, inventory, and planning.

Their long-standing reliance on complex Excel models, including macros and customized reporting, created a strong dependency on flexible and user-controlled environments. As ERP systems introduced standardized,

system-driven processes, this group perceived the change as a loss of control over their work practices, resulting in increased resistance, slower adoption, and continued use of workaround methods.

Shadow systems and data fragmentation

Across all case organizations, a consistent pattern was observed in the continued use of personal spreadsheet systems even after ERP go-live. Employees with strong Excel dependency frequently extracted data from the ERP and managed it through their own spreadsheets, effectively recreating familiar workflows outside the system. This behavior resulted in parallel data environments, creating uncertainty around data accuracy, increasing reconciliation effort, and delaying the organization's ability to rely on the ERP as a single source of truth. It also undermined the core objective of ERP implementation, which is to establish a unified and controlled data and process environment. This pattern was particularly pronounced in first-time ERP adopters (Companies A, C, E, and F), where employees had long relied on independent spreadsheet-based practices. However, even in organizations transitioning from a previous ERP, shadow system behavior re-emerged when users perceived the new system as more restrictive than their prior working methods.

Implications for implementation timelines

The persistence of spreadsheet dependency and shadow system behavior had a direct and recurring impact on ERP implementation timelines across all case organizations, affecting multiple phases of the implementation lifecycle. During the User Acceptance Testing phase, employees with strong spreadsheet habits often performed parallel Excel-based validations against ERP outputs, and any discrepancies led to extended discussions and repeated reconciliation efforts, significantly prolonging the testing period. Following system go-live, the continued use of shadow spreadsheets resulted in parallel data environments, creating confusion over data accuracy, delaying reporting and decision-making, and increasing the need for ongoing manual reconciliation. Consequently, the post-go-live stabilization phase was extended, and the realization of expected benefits such as real-time reporting and process integration was delayed. Importantly, these delays were not anticipated in the original project plans, as conventional ERP estimation approaches do not account for behavioral factors like spreadsheet dependency, highlighting a critical gap in pre-implementation risk assessment.

Proposed HR-led Workforce Readiness Assessment

Based on the evidence gathered across the seven case organizations, this paper proposes that HR functions should take a more active and strategic role in ERP transformation planning by leading structured Workforce Readiness Assessments before implementation begins. Unlike IT or finance teams, HR has contextual knowledge of how employees work, what habits they carry, and how ready they are likely to be for significant process changes. This makes HR well placed to identify non-technical adoption risks that would otherwise go unnoticed until they cause delays.

A key component of this assessment is the proposed Excel Dependency Audit, which is designed to surface the extent to which employees rely on informal, self-built spreadsheet environments that may be difficult to replace with standardized ERP workflows. This audit will examine the following areas:

- (a) Level of spreadsheet dependency: volume and frequency of Excel use across functions and role types.
- (b) Complexity of spreadsheet models: prevalence of macro-enabled workbooks, formula complexity, and custom reporting tools.
- (c) Shadow reporting practices: extent to which personal spreadsheet tools duplicate or replace formal reporting processes.
- (d) Adaptability to system-based workflows: employee openness to process standardization and tolerance for reduced personal data control.
- (e) Readiness to adopt enterprise workflows: prior experience with structured system environments and self-reported change readiness.

By conducting this assessment during the pre-implementation phase, HR can give project planners an early and realistic picture of where resistance is most likely to emerge. This allows workforce considerations to be built into the transformation design from the start, rather than being addressed reactively once problems have already surfaced.

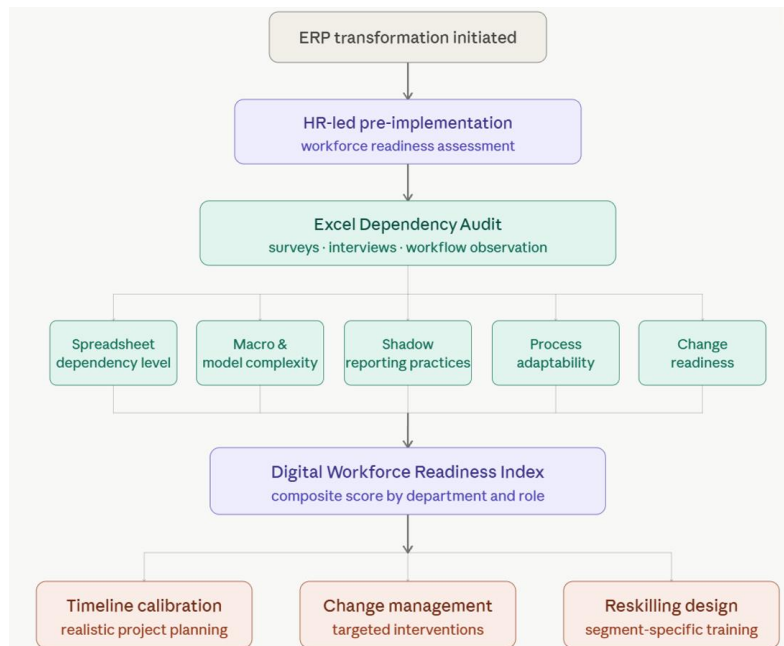


Figure 1. Conceptual Framework for HR-Led Workforce Readiness Assessment in ERP Digital Transformation

Digital Workforce Readiness Index (DWRI)

To translate the findings of the Excel Dependency Audit into a form that can directly inform project planning decisions, this paper proposes the Digital Workforce Readiness Index (DWRI). The DWRI is a structured scoring framework that brings together the key dimensions of workforce readiness into a single, measurable output. Its purpose is to give HR teams and ERP project stakeholders a clear, evidence-based view of how prepared the workforce is for digital transformation, going beyond simple assessments of digital skills to capture the deeper behavioral factors that influence adoption.

The DWRI is built around the understanding that ERP adoption is not purely a question of whether employees can use a system, but whether they are willing and ready to work within the constraints and disciplines that enterprise systems require. It gives particular weight to spreadsheet dependency as a hidden but measurable risk factor, recognizing that high proficiency in flexible personal tools can actually work against adoption of standard systems.

The framework covers four core dimensions:

- (a) Spreadsheet Dependency Level: the extent to which employees rely on spreadsheets for operational decision-making, reporting, and data management outside formal systems.
- (b) System Adoption Readiness: the willingness of employees to transition from flexible, user-controlled environments to structured ERP workflows.
- (c) Digital Literacy Profile: the baseline capability of employees to understand and operate within digital systems.
- (d) Process Standardization Acceptance: the degree to which employees are willing to align with predefined system-driven processes rather than personalized work practices.

Each dimension is assessed through structured surveys, role-based interviews, and direct observation, producing a composite readiness score at individual, functional, and organizational levels. This segmented view allows project teams to identify which departments or employee groups carry the highest adoption risk, and to tailor their change management and training strategies accordingly.

The DWRI moves workforce readiness from a reactive concern that surfaces during or after implementation, to a proactive planning input that shapes how the transformation is designed from the beginning.

Operationalizing the DWRI: HR Implementation Approach

To ensure practical applicability, the DWRI is calculated using a weighted composite formula that reflects the relative importance of each readiness dimension based on the chosen ERP implementation approach. The index is expressed as follows:

$$DWRI = w1 \times [1 - (v1 \times WU + v2 \times MC + v3 \times SR + v4 \times DA + v5 \times PR)] + w2 \times SAR + w3 \times DL + w4 \times PSA$$

Variable definitions:

WU = Work outside system (percentage of tasks performed using spreadsheets)

MC = Macro and complex logic usage in spreadsheets

SR = Shadow reporting practices

DA = Data autonomy preference (preference for personal control over data)

PR = Process replacement level (extent to which Excel replaces formal workflows)

SAR = System adoption readiness

DL = Digital literacy

PSA = Process standardization acceptance

v1 to v5 = Weights for spreadsheet dependency sub-factors (must sum to 1)

w1 to w4 = Weights for DWRI dimensions (must sum to 1)

In this formulation, spreadsheet dependency is modeled as a multi-dimensional construct and incorporated inversely to reflect its negative impact on ERP readiness. The weights (w1 to w4) are not fixed but are determined based on the selected ERP implementation approach, as different approaches carry different workforce-related risks. The recommended weight ranges by implementation approach are shown in Table 2 below.

Table 2: Recommended DWRI Weight Ranges by ERP Implementation Approach

Implementation Approach	w1: Spreadsheet Dependency	w2: System Adoption Readiness	w3: Digital Literacy	w4: Process Standardization Acceptance
Greenfield (new system)	High (0.35 to 0.40)	Medium to High	Medium	High
Brownfield (system upgrade)	Medium (0.20 to 0.25)	High	Medium	Very High (0.30 to 0.35)
Bluefield (hybrid)	Medium to High (0.25 to 0.30)	Medium to High	Medium	Medium to High

Source: Author's own framework based on practitioner experience.

Based on these weight ranges, the DWRI can be expressed in approach-specific forms:

Greenfield implementation:

$$DWRI = 0.40 \times [1 - (v1 \times WU + v2 \times MC + v3 \times SR + v4 \times DA + v5 \times PR)] + 0.25 \times SAR + 0.15 \times DL + 0.20 \times PSA$$

Brownfield implementation:

$$DWRI = 0.25 \times [1 - (v1 \times WU + v2 \times MC + v3 \times SR + v4 \times DA + v5 \times PR)] + 0.30 \times SAR + 0.15 \times DL + 0.30 \times PSA$$

Bluefield implementation:

$$DWRI = 0.30 \times [1 - (v1 \times WU + v2 \times MC + v3 \times SR + v4 \times DA + v5 \times PR)] + 0.25 \times SAR + 0.15 \times DL + 0.30 \times PSA$$

The HR function is responsible for conducting the pre-implementation assessment using surveys, interviews, and workflow observations to measure each variable. All variables are normalized on a scale of zero to one and used to compute DWRI scores at individual and departmental levels. The results enable segmentation of employees into readiness categories, providing a data-driven basis for identifying high-risk user groups and designing targeted interventions.

The DWRI outputs can then be directly incorporated into ERP project planning, informing timeline calibration, change management strategies, and reskilling initiatives. The index can also be re-administered at key transformation milestones to monitor progress and maintain alignment between workforce readiness and project objectives.

Illustrative application of the DWRI framework

It is important to note that a formal Excel Dependency Audit was not conducted as part of this study, and the scores presented in this section were not collected through a structured data collection exercise. Rather, they are illustrative estimates derived from the practitioner's structured reflection on observed employee behavior across the seven case organizations. The purpose of this illustration is to demonstrate how the DWRI framework could be applied in practice, and to show how the scoring model produces results that are consistent with the behavioral patterns described in the preceding sections.

To construct the illustrative scores, each variable in the DWRI model was estimated on a scale of zero to one for each case organization, based on recalled observations of employee tool usage, workaround behavior, and adoption patterns during implementation. These estimates should be interpreted as indicative only. They are presented here to show how the framework functions, not to make claims about actual measured values.

Table 3a shows the estimated scores for each variable across the seven organizations. The SDL column represents the Spreadsheet Dependency Level composite, calculated as the inverse of the weighted average of the five spreadsheet sub-factors (WU, MC, SR, DA, PR) with equal weights of 0.20 each. A lower SDL score indicates higher spreadsheet dependency and therefore higher adoption risk from this dimension.

Table 3a: Illustrative variable scores by case organization (estimated from practitioner reflection)

Company	WU	MC	SR	DA	PR	SDL	SAR	DL	PSA
Company A	0.75	0.55	0.65	0.60	0.60	0.37	0.55	0.50	0.50
Company B	0.85	0.80	0.80	0.80	0.75	0.20	0.40	0.75	0.35
Company C	0.70	0.50	0.60	0.55	0.55	0.42	0.60	0.50	0.55
Company D	0.80	0.75	0.75	0.75	0.70	0.25	0.45	0.80	0.40
Company E	0.65	0.45	0.55	0.50	0.50	0.47	0.65	0.45	0.60
Company F	0.60	0.40	0.50	0.45	0.45	0.52	0.70	0.45	0.65
Company G	0.82	0.78	0.78	0.78	0.72	0.22	0.42	0.78	0.38

Note:

WU = work outside system

MC = macro and complex logic usage

SR = shadow reporting

DA = data autonomy preference

PR = process replacement level

SDL = spreadsheet dependency level composite

SAR = system adoption readiness

DL = digital literacy

PSA = process standardization acceptance.

All scores are estimated on a 0 to 1 scale. These are illustrative values only and were not collected through a formal audit.

Table 3b presents the computed DWRI scores for each organization under all three implementation approach weightings. This allows comparison of how the same workforce profile would be assessed differently depending on the transformation approach chosen.

Table 3b: Illustrative DWRI scores by case organization and implementation approach

Company	Approach	ERP Profile	DWRI (Greenfield)	DWRI (Brownfield)	DWRI (Bluefield)
Company A	Greenfield	First-time	0.46	0.48	0.47
Company B	Brownfield	Experienced	0.36	0.39	0.38
Company C	Greenfield	First-time	0.50	0.53	0.52
Company D	Brownfield	Experienced	0.41	0.44	0.43
Company E	Greenfield	First-time	0.54	0.56	0.55
Company F	Greenfield	First-time	0.58	0.60	0.59
Company G	Bluefield	Experienced	0.39	0.41	0.40

Note:

DWRI scores computed using approach-specific weights from Table 2. Scores range from 0 (lowest readiness) to 1 (highest readiness). These are illustrative values only, derived from structured practitioner reflection and not from a formally administered assessment instrument.

The results of this illustrative application are consistent with the resistance patterns described in Section 4.1. Companies B, D, and G, all of which were experienced ERP users with high levels of spreadsheet proficiency among key user groups, produced the lowest DWRI scores across all three implementation approaches, indicating the highest adoption risk. Companies E and F, which were first-time ERP adopters in organizations with fewer years in business and less embedded spreadsheet culture, scored the highest, suggesting a relatively more adaptable workforce.

This pattern directly supports the central argument of this paper: that spreadsheet dependency is a meaningful and measurable risk factor in ERP adoption, and that organizations which appear technically capable of managing an ERP transition may still carry significant behavioral risks that are not visible through conventional pre-implementation planning methods. If an HR-led assessment using this framework had been conducted before each implementation, project teams would have had an early, quantified basis for adjusting timelines, targeting change management resources, and designing reskilling programs for the highest-risk employee segments.

Conclusion

This paper presents evidence from seven ERP implementation cases across Sri Lankan industries to identify spreadsheet dependency as a hidden but consistently disruptive risk factor in digital transformation programs. Contrary to pre-implementation assumptions, it is experienced, technically proficient employees with deep spreadsheet expertise, not low-digital-literacy workers, who most frequently generate adoption resistance, maintain shadow systems, and contribute to implementation timeline overruns. The findings argue for a fundamental reorientation of pre-implementation planning to include structured HR-led Workforce Readiness Assessments. The proposed Excel Dependency Audit and Digital Workforce Readiness Index (DWRI) offer practical frameworks through which HR can contribute meaningful, data-driven intelligence to ERP project planning processes. Early identification of high-dependency employee segments enables organizations to calibrate

realistic timelines, target change management resources effectively, and proactively address reskilling requirements before implementation commences. This paper contributes to the growing body of literature on HR's strategic role in digital transformation and offers actionable implications for HR practitioners, ERP project teams, and organizational change managers seeking to address the human capital dimensions of enterprise system adoption.

Practical Implications for HR Professionals

The findings of this paper carry several direct implications for HR practitioners involved in or preparing for digital transformation initiatives.

- (a) Secure early involvement.
HR should be part of ERP project planning from the start. Workforce behavioral risks cannot be identified through technical specifications alone; they require HR diagnostic expertise to surface.
- (b) Build assessment capability.
HR practitioners should be equipped to design and administer spreadsheet dependency audits. Well-structured surveys and role-based interviews are sufficient to generate meaningful diagnostic insight.
- (c) Use DWRI as an ongoing tool.
The DWRI framework should not be limited to pre-implementation. It can be re-administered at post-go-live milestones to track adoption progress and measure residual dependency levels over time.
- (d) Segment change management by employee profile.
Generic digital literacy training is not adequate for high-spreadsheet-dependency employees. These groups need targeted interventions that address both skill transition and the behavioral shift from personal data ownership to shared system governance.

References

- Behrens, S., & Sedera, W. (2004). Why do shadow systems exist after an ERP implementation? Lessons from a case study. In *Proceedings of the 8th Pacific Asia Conference on Information Systems (PACIS)* (pp. xx–xx). Shanghai, China.
- Boonstra, A. (2006). Interpreting an ERP implementation project as an attempt to accomplish, become, and perfect. *New Technology, Work and Employment*, 21(1), 42–60. <https://doi.org/10.1111/j.1468-005X.2006.00163.x>
- Boxall, P., & Purcell, J. (2016). *Strategy and human resource management* (4th ed.). Palgrave Macmillan.
- Caulkins, J. P., Morrison, E. L., & Weidemann, T. (2007). Spreadsheet errors and decision making: Evidence from field interviews. *Journal of Organizational and End User Computing*, 19(3), 1–23.
- Coghlan, D., & Brannick, T. (2014). *Doing action research in your own organization* (4th ed.). SAGE Publications.
- Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2019). *The technology fallacy: How people are the real key to digital transformation*. MIT Press.
- Kumar, V., Maheshwari, B., & Kumar, U. (2003). An investigation of critical management issues in ERP implementation: Empirical evidence from Canadian organizations. *Technovation*, 23(10), 793–807. [https://doi.org/10.1016/S0166-4972\(02\)00012-6](https://doi.org/10.1016/S0166-4972(02)00012-6)
- Markus, M. L., & Tanis, C. (2000). The enterprise system experience: From adoption to success. In R. W. Zmud (Ed.), *Framing the domains of IT research: Glimpsing the future through the past* (pp. 173–207). Pinnaflex Educational Resources.
- Nah, F. F. H., Lau, J. L. S., & Kuang, J. (2001). Critical factors for successful implementation of enterprise systems. *Business Process Management Journal*, 7(3), 285–296. <https://doi.org/10.1108/14637150110392782>
- Somers, T. M., & Nelson, K. G. (2004). A taxonomy of players and activities across the ERP project life cycle. *Information & Management*, 41(3), 257–278. [https://doi.org/10.1016/S0378-7206\(03\)00023-5](https://doi.org/10.1016/S0378-7206(03)00023-5)
- Ulrich, D., Younger, J., Brockbank, W., & Ulrich, M. (2012). *HR from the outside in: Six competencies for the future of human resources*. McGraw-Hill.