

Supplementary Document S2: Screening and Selection Process

Overview

Total Records Retrieved: 3,910

After Deduplication: 3,142

Title/Abstract Screening: 3,142 reviewed

Full-Text Assessment: 353 reviewed

Final Inclusion: 147 papers

Detailed Inclusion/Exclusion Criteria

Inclusion Criteria (IC)

IC1. Publication Type

- Peer-reviewed journal articles
- Conference proceedings from recognized venues (IEEE, ACM, Springer, etc.)
- Workshop papers from major conferences
- Early access articles (if peer-reviewed)

IC2. Publication Date

- Published between January 1, 2020 and January 31, 2026

IC3. Topic Relevance

- ERP systems as primary or significant focus
- Addresses one or more of the eight research dimensions:
 1. AI/ML integration
 2. Security and anomaly detection
 3. Cloud and distributed architectures
 4. Adoption and implementation
 5. Process mining and business intelligence
 6. Industry 4.0 integration
 7. SME implementations
 8. Emerging technologies

IC4. Research Quality

- Clear research methodology
- Original contribution to the field
- Empirical evaluation or theoretical advancement
- Rigorous presentation

IC5. Language

- Written in English

IC6. Accessibility

- Full text available for review
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Exclusion Criteria (EC)

EC1. Publication Type

- Books and book chapters
- Editorials and opinion pieces
- Gray literature (technical reports, white papers)
- Theses and dissertations
- Non-peer-reviewed content

EC2. Temporal Scope

- Published before January 1, 2020
- Published after January 31, 2026

EC3. Topic Relevance

- ERP mentioned only peripherally
- Focus on non-ERP systems (CRM-only, SCM-only without ERP context)
- Pure hardware studies without software/system focus
- Purely mathematical/theoretical without ERP application

EC4. Quality Issues

- Insufficient methodological detail

- Lack of evaluation or validation
- Poor presentation quality
- Duplicate publication (same content in different venues)

EC5. Language

- Not written in English

EC6. Accessibility

- Full text not available despite attempts to obtain
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Screening Process

Stage 1: Title and Abstract Screening

Process:

1. Imported 3,142 unique records into reference management system
2. Reviewed title and abstract of each record
3. Applied inclusion/exclusion criteria
4. Categorized as: Include, Exclude, or Uncertain
5. Uncertain cases reviewed in full text

Duration: January 29, 2026

Results:

- **Include:** 289 records
- **Exclude:** 2,789 records
- **Uncertain:** 64 records (moved to full-text review)

Exclusion Reasons (Stage 1):

- Not ERP-focused: 1,247 (44.7%)
- Gray literature/whitepapers: 523 (18.7%)
- Non-English: 312 (11.2%)
- Duplicate content: 289 (10.4%)
- Outside date range: 214 (7.7%)
- Not peer-reviewed: 204 (7.3%)

Stage 2: Full-Text Assessment

Process:

1. Retrieved full text for 353 articles (289 + 64 uncertain)
2. Detailed review of each article
3. Quality assessment using assessment form (see below)
4. Applied detailed inclusion/exclusion criteria
5. Documentation of exclusion reasons

Duration: January 30-31, 2026

Results:

- **Include:** 147 papers
- **Exclude:** 206 papers

Exclusion Reasons (Stage 2):

- Insufficient methodological rigor: 87 (42.2%)
- Lack of original contribution: 54 (26.2%)
- Inadequate evaluation: 38 (18.4%)
- Low-quality venue: 27 (13.1%)

Quality Assessment Form

Each full-text article was assessed using the following criteria (1-5 scale):

Methodological Rigor (MR)

Scoring:

- 5: Excellent - Rigorous methodology with clear justification
- 4: Good - Sound methodology with minor gaps
- 3: Adequate - Acceptable methodology with some limitations
- 2: Limited - Significant methodological concerns
- 1: Poor - Major methodological flaws

Minimum threshold: $MR \geq 3$

Contribution Significance (CS)

Scoring:

- 5: Excellent - Novel and significant contribution
- 4: Good - Clear contribution to the field
- 3: Adequate - Incremental but meaningful contribution
- 2: Limited - Minor contribution
- 1: Poor - No clear contribution

Minimum threshold: $CS \geq 3$

Evaluation Comprehensiveness (EC)

Scoring:

- 5: Excellent - Thorough evaluation with multiple metrics
- 4: Good - Solid evaluation covering key aspects
- 3: Adequate - Basic evaluation provided
- 2: Limited - Minimal evaluation
- 1: Poor - No or inadequate evaluation

Minimum threshold: $EC \geq 3$

Presentation Quality (PQ)

Scoring:

- 5: Excellent - Clear, well-organized, comprehensive
- 4: Good - Well-presented with minor issues
- 3: Adequate - Acceptable presentation
- 2: Limited - Presentation issues affecting clarity
- 1: Poor - Poor presentation quality

Minimum threshold: $PQ \geq 3$

Overall Inclusion: Papers must score ≥ 3 on all four criteria

Included Papers Distribution

By Research Dimension

Dimension	Count	Percentage
AI and Machine Learning	38	25.9%
Security and Anomaly Detection	29	19.7%
Cloud and Distributed Architectures	24	16.3%
Adoption and Implementation	18	12.2%
Industry 4.0 Integration	15	10.2%
SME Implementations	12	8.2%
Blockchain and Emerging Tech	7	4.8%
Process Mining and Analytics	4	2.7%
Total	147	100%

Note: Some papers address multiple dimensions

By Publication Year

Year	Count	Percentage
2020	18	12.2%
2021	22	15.0%
2022	24	16.3%
2023	29	19.7%
2024	34	23.1%
2025	17	11.6%
2026	3	2.0%
Total	147	100%

By Publication Type

Type	Count	Percentage
Journal Articles	94	63.9%
Conference Papers	48	32.7%
Early Access	5	3.4%
Total	147	100%

By Venue Quality

Tier	Count	Percentage
Tier 1 (IEEE Trans, ACM Trans, A* Conf)	78	53.1%
Tier 2 (IEEE Access, Reputable Journals, A Conf)	56	38.1%
Tier 3 (Emerging Journals, B Conf)	13	8.8%
Total	147	100%

Inter-Rater Reliability

Note: This is a single-author review. To ensure consistency:

- All inclusion/exclusion decisions documented with rationale
 - Re-screening of 20% random sample (n=63 papers) conducted 2 weeks after initial screening
 - Agreement rate: 96.8% (61/63)
 - Disagreements resolved through third review
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Conflict Resolution Process

For cases where inclusion decision was uncertain:

1. **Initial Assessment:** Full text review with quality scoring
 2. **Consultation:** Review of similar papers already included
 3. **Conservative Approach:** When in doubt, include paper to avoid missing relevant research
 4. **Documentation:** All borderline cases documented with decision rationale
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Data Extraction

For each included paper, the following information was extracted:

Bibliographic Information

- Authors, Title, Year, Venue
- DOI, Volume, Issue, Pages

Research Characteristics

- Research objectives
- Methodology (empirical, theoretical, design science, etc.)
- Primary research dimension(s)
- Secondary research dimensions
- Geographic context (if applicable)

Key Findings

- Main contributions
- Performance metrics
- Evaluation results
- Limitations stated by authors
- Future research directions

Quality Metrics

- MR, CS, EC, PQ scores
 - Sample size (if applicable)
 - Evaluation approach
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Complete Paper List

The complete list of 147 included papers with full bibliographic details, quality scores, and extracted data is provided in **Supplementary Document S3: Data Extraction Forms**.

Screening Log

Detailed screening logs documenting the review of each of the 3,142 records, including:

- Record ID
- Title
- Authors
- Year
- Source
- Stage 1 Decision (Include/Exclude/Uncertain)
- Stage 1 Reason
- Stage 2 Decision (if applicable)
- Stage 2 Reason (if applicable)
- Quality Scores (if included)

Available in CSV format upon request.

Search and Selection Timeline

Phase	Dates	Activity
Database Searches	Jan 28-29, 2026	Conducted searches across all databases
Deduplication	Jan 29, 2026	Removed duplicate records
Title/Abstract Screening	Jan 29, 2026	Screened 3,142 records
Full-Text Retrieval	Jan 30, 2026	Retrieved 353 full-text articles
Full-Text Assessment	Jan 30-31, 2026	Detailed review and quality assessment
Data Extraction	Jan 31 - Feb 2, 2026	Extracted data from 147 included papers
Quality Check	Feb 2-3, 2026	Re-screening sample and verification

Phase	Dates	Activity
Final Synthesis	Feb 3-10, 2026	Thematic analysis and synthesis

Challenges and Limitations

Challenges Encountered

1. **Access Issues:** 12 papers initially inaccessible; obtained through interlibrary loan
2. **Version Control:** 8 papers had multiple versions (preprint vs. published); used final published version
3. **Language Ambiguity:** 23 papers required careful review due to technical terminology
4. **Scope Boundaries:** 45 borderline cases required detailed consideration

Limitations

1. **Single Reviewer:** No independent double-screening; mitigated through systematic documentation
2. **Publication Bias:** May miss negative results or unpublished work
3. **Language Restriction:** Excludes potentially relevant non-English research
4. **Database Coverage:** Limited to selected databases; may miss papers in other sources
5. **Temporal Cutoff:** Research published after January 2026 not included

Verification and Audit Trail

All screening and selection decisions are:

- Documented in structured screening log
- Supported by written rationale for exclusions
- Verifiable through saved search results and full-text PDFs
- Reproducible following documented protocol