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Comparative Analysis of SAP S/4HANA Migration Strategies: Evidence from Published Industry Surveys and Implications for Finance Transformation

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Research Article

Keywords: SAP S/4HANA, Greenfield, Brownfield, finance transformation, secondary-data analysis, enterprise systems

Posted Date: November 10th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11654334/v1

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Additional Declarations: The authors declare no competing interests.

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Abstract

The transition to SAP S/4HANA requires organisations to choose how much of their existing enterprise resource planning environment to retain, redesign or selectively transform. Greenfield, Brownfield and selective data transition approaches are frequently discussed as competing migration routes, yet published industry surveys report different preference patterns across periods and respondent populations. This study conducts a descriptive comparative analysis of publicly available aggregate findings from three industry surveys: the PwC–LeanIX study (2018; 134 respondents), the Sogeti State of Worldwide Business Assurance for SAP Solutions study (2023; 501 respondents for the migration-approach question), and Kearney's SAP S/4HANA cloud-transition survey (200 respondents reported in its survey materials). The analysis preserves each survey's original denominator and category definitions and does not pool percentages across studies. Brownfield was the most frequently reported approach in the 2018 PwC–LeanIX and 2023 Sogeti findings, whereas Greenfield was the largest single category in Kearney's more recent planned-migration results. This variation cautions against treating any route as universally preferred or superior. The reports also identify considerations relevant to finance transformation, including process improvement, legacy complexity, data quality, continuity, testing and confidence in business outcomes. However, the reviewed surveys do not provide a harmonised, independently verified measure of finance performance by migration route. The study therefore develops an evidence-informed decision framework linking route selection to process fit, data condition, control requirements, delivery capacity and post-implementation benefits measurement. The findings are descriptive and cannot establish causal relationships between migration route and business value.

Keywords: SAP S/4HANA; Greenfield; Brownfield; selective data transition; ERP migration; finance transformation; secondary-data analysis; enterprise systems

1. Introduction

1.1 Background

Enterprise resource planning (ERP) systems support interconnected organisational activities, including procurement, sales, inventory, production, accounting and management reporting. Their configuration influences how information is defined, processed, controlled and reported across business units. Consequently, a major ERP transition is not only a software upgrade; it can also change operating processes, data responsibilities, internal controls and management decision-making. Enterprise systems research has long identified the organisational consequences of integrating business processes through common information infrastructures (Davenport, 1998; Markus & Tanis, 2000).

The move from SAP ERP Central Component (ECC) to SAP S/4HANA creates a strategic choice about the future-state system. A Greenfield implementation establishes a new environment and typically creates greater opportunity to redesign processes. A Brownfield conversion transforms an existing SAP system while retaining a substantial portion of its configuration and historical continuity. Selective data transition, often described as Bluefield, combines elements of both by transferring selected data, processes or configuration. The labels describe broad approaches rather than fixed technical recipes; actual programmes may combine them across entities, business units or implementation phases.

1.2 Problem statement

Published industry surveys do not report a single consistent migration preference. The PwC–LeanIX study reported a strong preference for Brownfield and mixed approaches among its respondents, while Sogeti's 2023 survey also reported Brownfield as the largest category. Kearney's more recent survey reported Greenfield as the largest single category among planned migrations. These differences may reflect survey timing, respondent composition, migration context, deployment choices and category definitions. They should not be interpreted as evidence that one approach has become objectively superior.

A second problem concerns the relationship between migration route and finance modernisation. Organisations may expect a new ERP environment to improve reporting, close processes, data quality and control effectiveness. Yet preference data alone cannot show whether those outcomes were achieved. A defensible analysis must separate reported migration intentions from demonstrated post-implementation performance.

1.3 Aim and research questions

The aim of this study is to compare reported SAP S/4HANA migration-strategy preferences in selected published industry surveys and to derive cautious implications for finance-transformation governance. The study addresses four questions:

RQ1. How do reported Greenfield, Brownfield and selective data-transition preferences differ across the selected industry surveys?

RQ2. What contextual considerations are reported alongside migration choices?

RQ3. What do the available survey findings indicate about the limits of drawing conclusions on finance-transformation value?

RQ4. What evidence-based decision considerations can guide organisations selecting and governing a migration route?

1.4 Contribution and scope

The contribution is a transparent cross-survey comparison and a decision framework that distinguishes migration preference from migration performance. The study does not claim to evaluate named companies, access confidential SAP implementation records, or measure causal effects. It analyses only aggregate findings disclosed in the selected reports.

2. Methodology

2.1 Research design

The study uses a descriptive comparative secondary-data design. The unit of analysis is a published survey result, not an individual company or respondent record. The analysis is limited to aggregate percentages and sample sizes explicitly reported in the source documents. Because the surveys use different sampling frames, dates, respondent profiles and question wording, the results are presented side by side rather than statistically pooled.

2.2 Source identification and inclusion criteria

Three reports were included because they publicly disclosed migration-strategy percentages and provided sufficient contextual information to identify the relevant question and denominator. The first was the PwC and LeanIX study, The State of SAP S/4HANA Transformation (2018), which reported 134 online-survey respondents and migration-route percentages. The second was Sogeti's State of Worldwide Business Assurance for SAP Solutions (2023), which reported 501 respondents for the migration-approach question. The third was Kearney's Are You Ready for SAP S/4HANA in the Cloud? survey, which reported planned migration-route percentages and a 200-respondent sample in its associated survey materials.

Reports were not included as comparable observations merely because they discussed SAP migration. Where sample size or denominator could not be tied clearly to the migration question, the result was treated cautiously

or excluded from the core comparison. Vendor and consulting-firm reports were treated as industry survey evidence, not as peer-reviewed independent evaluations.

2.3 Data extraction

For each report, the following fields were recorded where disclosed: publisher, report year, total survey sample, migration-question denominator, migration categories, reported percentages, respondent context and relevant stated business or technology considerations. Percentages were transcribed as published. No missing values were imputed and no attempt was made to reconstruct individual-level observations from rounded percentages.

2.4 Analytical procedure

The analysis proceeded in four steps. First, migration categories were mapped conceptually to Greenfield, Brownfield and selective or hybrid transition while preserving each report's original terminology. Second, the reported percentages were tabulated with their denominators. Third, differences between studies were interpreted in light of their dates and reported context. Fourth, implications for finance transformation were derived only where the reports provided relevant evidence. No inferential statistics, meta-analysis, regression or causal estimation was conducted because harmonised raw data were unavailable.

2.5 Methodological safeguards

To reduce overstatement, the study does not add the survey sample sizes together as though they represented one population. It does not calculate a pooled average or claim statistical significance for differences between surveys. It also distinguishes survey respondents' stated or planned approaches from completed implementation outcomes. Where a report does not disclose sufficient methodological detail in the accessible publication, that limitation is stated rather than inferred.

3. Results

3.1 Cross-survey migration preferences

Table 1 summarises the three selected survey findings. In the 2018 PwC–LeanIX study, Brownfield accounted for 44% of reported migration approaches, mixed Greenfield–Brownfield approaches for 42%, and Greenfield for 14%. In Sogeti's 2023 survey, Brownfield represented 44.7%, selective data transition/Bluefield 31.1%, and Greenfield 24.2%. Kearney's more recent survey reported Greenfield at 37.5%, Brownfield at 29%, Bluefield at 23.5%, and undecided at 10% among planned migrations.

Survey/report	Survey year	Reported sample / denominator	Greenfield	Brownfield	Selective / hybrid	Undecided
PwC–LeanIX	2018	134 survey respondents; migration subgroup denominator not separately stated in extracted figure	14%	44%	42%	Not stated
Sogeti	2023	501 respondents to migration-approach question	24.2%	44.7%	31.1%	Not stated
Kearney	Recent survey	200 respondents reported in survey materials; migration-question denominator not separately stated on the accessible chart	37.5%	29.0%	23.5%	10.0%

The pattern is not a simple linear movement from one route to another. Brownfield was the largest category in the first two reports, while Greenfield was the largest single category in the Kearney result. The selective or

hybrid category remained material in all three reports where it was separately identified. The variation is consistent with the possibility that organisations make route decisions in response to their own system condition, strategic intent and implementation constraints.

3.2 Context reported by the PwC–LeanIX study

The PwC–LeanIX study described respondents from multiple industries and geographies, with 134 online-survey responses. It reported that the transformation was commonly viewed as part of broader digital and business transformation rather than solely as a technical update. The report identified complex legacy landscapes, high customisation, unclean master data and non-harmonised business processes as challenges. These findings are relevant to finance because data integrity, process standardisation and integration complexity can affect reconciliations, reporting consistency and control design. They do not, however, demonstrate that a particular migration route resolved those challenges.

3.3 Context reported by Sogeti

Sogeti's 2023 report included a migration-approach question answered by 501 respondents. Brownfield was reported by 44.7%, selective data transition/Bluefield by 31.1%, and Greenfield by 24.2%. The report's broader findings discuss testing, integration, system assurance and upgrade readiness. Its methodology combined desk research, quantitative survey work and expert discussions, with Phronesis Partners identified as the independent market-research company deploying the integrated methodology. The survey also reported that 80% of respondents were completely or mostly prepared for regular SAP upgrades. These results underline the operational importance of testing and change readiness, but they are not direct measures of finance-process outcomes after migration.

3.4 Context reported by Kearney

Kearney reported Greenfield at 37.5%, Brownfield at 29%, Bluefield at 23.5% and undecided at 10% among planned migration routes. Its report associated Greenfield with organisations facing fragmented technology ecosystems and data-quality or legacy-complexity challenges. It described Brownfield and Bluefield as attractive to organisations seeking faster or lower-cost transition options while retaining selected existing assets. These are interpretations reported by the consultancy and should not be treated as independently tested causal explanations.

3.5 Summary of descriptive findings

Across the selected surveys, no route consistently dominates every context and period. Brownfield's reported share was similar in the PwC–LeanIX and Sogeti results, while the Kearney findings showed a higher Greenfield share. Selective or hybrid transition remained a substantial option. The surveys therefore support a context-dependent view of migration choice rather than a universal ranking.

3.6 Finance-transformation evidence gap

The selected reports provide information about migration preferences, transformation challenges and some general business priorities. They do not provide a common set of pre- and post-migration finance indicators linked to each route. In particular, the reviewed aggregate findings do not permit a reliable comparison of month-end close duration, reconciliation backlog, journal-entry error rates, audit adjustments, working-capital performance or finance operating cost by Greenfield, Brownfield and Bluefield route. As a result, the available evidence cannot establish which route generates superior finance value.

4. Discussion

4.1 Interpreting differences between surveys

The cross-survey variation should be interpreted as descriptive rather than contradictory. The studies were conducted in different periods and may reflect different respondent populations, geographic distributions, stages of migration and deployment objectives. Their migration categories are also not perfectly equivalent: the PwC–LeanIX report described a mixed approach, Sogeti used selective data transition/Bluefield, and Kearney distinguished Bluefield. A change in category share across reports cannot therefore be attributed to a change in organisational preference alone.

4.2 Implications for route selection

The findings support a decision process that begins with the organisation's current-state evidence rather than a preference for a fashionable migration label. Greenfield should be evaluated where the target operating model requires substantial process redesign, the existing landscape is fragmented, or legacy customisation and data structures prevent a credible future-state design. Brownfield should be evaluated where existing processes and configuration remain fit for purpose, continuity and historical traceability are important, and technical conversion risks can be controlled. Selective transition should be considered where the organisation needs to retain selected data or processes while redesigning other parts of the landscape. These are decision conditions, not universal prescriptions.

4.3 Finance leaders as transformation co-owners

Finance leadership should participate in route selection because migration decisions affect the integrity and usability of financial information. Finance owners should define the target chart of accounts, master-data governance, reconciliation requirements, close-calendar dependencies, approval workflows, segregation-of-duties controls, tax configuration and audit-evidence requirements. These requirements should be translated into testable acceptance criteria before cutover.

4.4 Evidence-informed decision framework

The framework developed from the comparison contains five linked decision dimensions: (1) strategic process renewal; (2) data and system condition; (3) continuity and control requirements; (4) organisational delivery readiness; and (5) benefits measurement. Each route should be assessed against documented evidence for these dimensions. Mandatory technical, legal, security and control requirements should operate as pass/fail gates rather than being offset by a high weighted score in another category.

Decision dimension	Evidence to examine	Finance-related questions
Strategic process renewal	Target operating model, process variation, standardisation priorities	Which record-to-report, procure-to-pay and order-to-cash processes must change?
Data and system condition	Master-data quality, reconciliation status, custom-code inventory, interfaces	Can balances, master data and historical records be migrated and reconciled reliably?
Continuity and controls	Audit trail, statutory obligations, access roles, segregation of duties	Which controls must remain effective during cutover and stabilisation?
Delivery readiness	Skills, partner capacity, testing environments, business-owner availability	Can finance teams validate end-to-end scenarios and support close during transition?
Benefits measurement	Baselines, metric definitions, owners, post-go-live reporting cadence	How will improvements in close, reconciliation, reporting and control be measured?

4.5 Benefits realisation and performance measurement

A migration business case should distinguish expected benefits from realised benefits. Before implementation, the organisation should establish baselines for selected indicators, define data sources and assign accountable owners. Potential finance indicators include close-cycle duration, percentage of reconciliations completed on time, aged unreconciled items, manual journal-entry volume, invoice exception rates, reporting latency, audit findings and control exceptions. Targets should be set using organisation-specific baselines rather than generic percentages. Post-go-live reviews should compare actual results with those baselines and explain deviations.

4.6 Testing and control assurance

The Sogeti findings highlight the prominence of testing, integration and upgrade readiness in SAP environments. For finance transformation, testing should include end-to-end scenarios that cross organisational and system boundaries. Examples include procure-to-pay from purchase order through payment, order-to-cash from sales order through cash application, and record-to-report from subledger posting through consolidation and external reporting. Reconciliation evidence, role-based access testing and cutover rehearsals should be retained as part of the go-live decision record.

4.7 Implications for research

Future empirical research should collect comparable organisation-level data on migration route, system context, implementation scope and finance outcomes. Longitudinal designs would be particularly useful because finance benefits may emerge after stabilisation rather than immediately at go-live. Researchers should report route definitions consistently and distinguish planned approaches from completed migrations. Independent verification of reported benefits would strengthen the evidence base.

5. Limitations

This study has several limitations. First, it relies on published aggregate survey reports rather than raw respondent-level datasets. Second, the surveys differ in date, geography, respondent profile, sample denominator and category wording. Third, some reports do not disclose the denominator for every migration-approach chart in the accessible material. Fourth, the reports are produced by consulting, technology or business-assurance organisations and may reflect their own research priorities. Fifth, the analysis is descriptive and does not test statistical differences between surveys. Sixth, the selected survey findings do not provide harmonised finance-performance outcomes by migration route. Finally, the analysis cannot establish that migration route causes improvements in cost, reporting, control or operational performance.

These limitations mean that the results should be treated as a structured comparison of disclosed industry survey findings, not as a representative estimate of all SAP customers or a validated ranking of migration strategies.

6. Conclusion

This study compared published industry-survey findings on SAP S/4HANA migration strategies and examined their implications for finance transformation. Brownfield was the largest reported category in the 2018 PwC–LeanIX and 2023 Sogeti surveys, while Greenfield was the largest single category in Kearney’s more recent planned-migration findings. Selective or hybrid approaches remained important across the reports. The variation reinforces the need to interpret migration choices in their survey and organisational context.

The evidence does not show that one migration route consistently produces superior finance outcomes. A defensible decision should instead assess strategic process renewal, data and system condition, continuity and control requirements, delivery readiness, and the ability to measure benefits after go-live. Finance leaders should own financial-data definitions, reconciliation design, control assurance and outcome measurement throughout the transformation. Further research using comparable longitudinal implementation and finance-performance data is required before causal claims about migration route and business value can be made.

Declarations

Funding

The author should confirm the funding position. If no external funding was received, use: “This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.”

Competing interests

The author should disclose any financial or non-financial relationships relevant to SAP, the survey publishers, implementation vendors or consulting organisations. If none exist, use: “The author declares no competing interests.”

Ethics approval

This study analyses publicly available aggregate survey reports and does not involve new data collection from human participants. The author should confirm the applicable institutional requirements before submission.

Data availability

The study uses publicly accessible aggregate data reported in the cited industry reports. No respondent-level dataset was obtained or generated by the author. The extraction table in this manuscript records the figures used in the analysis.

Author contributions

To be completed and approved by the author. Do not assign contributions that do not accurately describe the author’s work.

Acknowledgements

To be completed if applicable.

References

[1] Davenport, T. H. (1998). Putting the enterprise into the enterprise system. Harvard Business Review, 76(4), 121–131.

[2] Kearney. (n.d.). Are you ready for SAP S/4HANA in the cloud? Kearney. https://www.kearney.com/service/digital-analytics/are-you-ready-for-sap-s4-hana-in-the-cloud

[3] Markus, M. L., & Tanis, C. (2000). The enterprise systems experience—from adoption to success. In R. W. Zmud (Ed.), Framing the domains of IT management: Projecting the future through the past (pp. 173–207). Pinnaflex.

[4] PwC & LeanIX. (2018). The state of SAP S/4HANA transformation. https://www.pwc.de/de/strategie-organisation-prozesse-systeme/the-state-of-sap-s4-hana-transformation.pdf

[5] Sogeti, Capgemini, Tricentis, & INT4. (2023). State of worldwide business assurance for SAP solutions – 2023. https://www.sogeti.com/wp-content/uploads/sites/3/2024/10/state-of-worldwide-business-assurance-for-sap-solutions-2023.pdf

Table and source notes

Table 1 is a transcription of reported aggregate percentages. PwC–LeanIX reported 134 total survey respondents; the migration chart denominator was not separately identified in the extracted chart. Sogeti reported 501 respondents for the migration-approach question. Kearney reported 200 survey respondents in its associated survey materials; the migration-chart denominator should be confirmed against the final downloadable report before submission. Percentages are not pooled.

Before submission, the author must verify the final reference metadata, access dates, corresponding-author email, funding and competing-interest declarations, and all source permissions or attribution requirements. The

manuscript should not be described as a systematic review or meta-analysis.

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