



Feasibility of Odoo 17 ERP Implementation for Human Resource Management in a Small Indonesian Educational Institution

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Abstract

Background: Small educational institutions often rely on manual human resource management (HRM) despite having limited staff and increasing data demands.

Objective: This study evaluates the feasibility of Odoo 17 as an Enterprise Resource Planning (ERP) system for HRM at Edu_Inst, a small Indonesian K-9 educational institution with two HR staff members serving approximately 150 employees.

Methods: A single-case feasibility study was conducted using semi-structured interviews, observation, and document analysis, combining *fit-gap analysis*, technical assessment, cost-benefit analysis, and a risk matrix. The economic analysis applied an opportunity-cost approach, valuing staff time freed through automation rather than direct cash savings.

Results: Odoo 17 supports most HRM requirements, particularly employee data management, recruitment, attendance and leave management, reporting, and workflow automation, while partial fits remain in payroll localization, tax and BPJS reporting, attendance integration, grievance handling, and employee self-service access. The Software-as-a-Service (SaaS) deployment is technically feasible, given adequate devices and redundant connectivity. Economically, the case is conditional: only the 100% full-displacement scenario yields a positive net benefit (IDR 571,500/year), whereas the 30%, 50%, and 70% scenarios do not cover the annual subscription cost. This scenario represents an optimistic upper bound rather than an expected outcome. External training results in an impractical 41.4-year payback period, whereas internal training shortens the payback period to approximately 7.4 years.

Conclusion: Odoo 17 is operationally and technically feasible, but its economic justification depends on internalizing training costs, achieving substantial time savings, and recognizing non-financial benefits such as data quality, process reliability, and information governance.

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INTRODUCTION

Small educational institutions often face administrative constraints because HR functions are handled by limited personnel, while employee records, attendance, leave, recruitment, and payroll processes continue to grow in volume and complexity. In educational institutions, ERP systems can support HRM by integrating employee data, recruitment, training, payroll, attendance, benefits administration, and reporting into a centralized platform. Ayush et al. (2024), Hermawan and Panjaitan (2023), and Sholeh et al. (2025) show that ERP adoption in educational institutions can improve efficiency, decision-making, and institutional performance. However, the benefits depend on how well the system aligns with organizational needs and user capacity.

Despite its potential benefits, ERP implementation remains challenging for resource-

constrained organizations. ERP projects may fail or underperform because of process misalignment, technical complexity, weak project management, limited user readiness, inadequate training, and resistance to change. In higher education and public-sector contexts, Bamufleh et al. (2021), Butarbutar et al. (2023), Ghosh et al. (2021), and Zuma and Sibindi (2023) show that successful ERP implementation requires not only technical functionality but also top management support, user acceptance, knowledge management, and post-implementation capability.

Edu_Inst is a small Indonesian K-9 educational institution that has not yet implemented an integrated ERP system. Its HRM unit manages recruitment, employee records, attendance, payroll preparation, leave administration, and performance-related documentation with only two HR staff members serving approximately 150 employees. The current reliance on manual and semi-digital processes creates fragmented employee data, repetitive administrative work, limited process visibility, and potential delays in reporting and decision-making. As Jamal (2021) and Singh and Singh (2022) show, ERP-supported HRM can help organizations integrate HR data and shift HR personnel from routine administrative tasks to more strategic functions, such as workforce planning, talent management, and employee development.

Odoo 17 is considered in this study because its modular ERP architecture supports HR functions, including employee records, attendance, leave, recruitment, payroll processes, and reporting. Prior studies have shown that Odoo-based HR modules can support HR process digitalization and improve administrative efficiency when their implementation aligns with business requirements (Sholeh et al., 2025; Widodo & Sarah, 2022). However, in the Indonesian context, certain functions, such as payroll compliance, *Badan Penyelenggara Jaminan Sosial* (BPJS, Indonesia's social-security agency) reporting, tax configuration, and system integration, require careful validation, as ERP functionality depends on configuration, localization, and implementation support.

This study addresses this gap by offering an integrated feasibility assessment of Odoo 17 HRM adoption in a small K-9 educational institution with limited HR and IT capacity. Rather than examining system functionality alone, the study evaluates operational fit, technical readiness, opportunity-cost-based economic value, and implementation risk within a single decision framework. Drawing on prior feasibility and risk studies by Alavi et al. (2021), Imane et al. (2022), Prasetyawan (2021), and Reyhan et al. (2022), this study contributes by combining four dimensions (operational fit, technical readiness, opportunity-cost-based economic evaluation, and implementation risk) into a practical feasibility framework for assessing Odoo 17 HRM adoption in a resource-constrained educational setting.

The methodological position of this study is compared with related ERP feasibility and implementation studies in Table 1. As shown in Table 1, previous studies have commonly focused on specific aspects, such as strategic feasibility, operational fit, economic analysis, and risk prioritization. However, limited studies integrate operational, technical, economic, and risk perspectives within a single feasibility framework for HRM adoption in a small educational institution.

Table 1
Comparison of Related ERP Feasibility and Implementation Studies

Study	Context or object	Method or approach	Feasibility or implementation dimensions	Relevance to this study
Prasetyawan (2021) and Reyhan et al. (2022)	ERP feasibility for business development in SBU XYZ	Descriptive qualitative approach using SWOT analysis, interviews, observation, and document review	HRM, marketing, technical and technological aspects, and industrial environment	Provides a broad feasibility perspective, but does not offer detailed Fit or Gap Analysis, opportunity-cost CBA, or structured risk scoring.

Study	Context or object	Method or approach	Feasibility or implementation dimensions	Relevance to this study
Imane et al. (2022)	ERP Fit or Gap Analysis stage	Literature review and expert-based decision-support model	Business process alignment and Fit or Gap decision support	Supports the use of Fit or Gap Analysis to evaluate alignment between ERP features and organizational requirements.
Reyhan et al. (2022)	IT investment feasibility for BTS tower acquisition	CBA uses financial and non-financial benefit categories	Investment cost, benefit estimation, and feasibility decision	Supports the use of CBA as a structured economic evaluation method, including the distinction between tangible and intangible benefits.
Alavi et al. (2021) and Butarbutar et al. (2023)	ERP implementation risk assessment	Risk assessment using Failure Mode and Effects Analysis (FMEA) and prioritization using the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), with risks categorized by Balanced Scorecard perspectives	ERP implementation risk identification and prioritization	Supports the use of structured risk assessment to identify and prioritize risks in ERP implementation.
This study	Odoo 17 ERP feasibility for HRM in a small Indonesian educational institution	Single-case study using interviews, observation, document analysis, Fit or Gap Analysis, technical assessment, opportunity-cost CBA, and Risk Assessment Matrix	Operational fit, technical readiness, economic feasibility, and implementation risk	Integrates operational, technical, economic, and risk perspectives into a single framework for a resource-constrained educational institution.

METHOD

This study used a single-case design to evaluate the feasibility of implementing Odoo 17 as an ERP for HRM at Edu_Inst. The case study design was selected because the research focused on one bounded institutional setting and aimed to produce a contextual feasibility assessment rather than statistical generalization. The feasibility framework combined operational, technical,

economic, and risk perspectives. This aligns with Alavi et al. (2021), Butarbutar et al. (2023), and Imane et al. (2022), who note that ERP implementation requires alignment among system functionality, organizational processes, infrastructure readiness, economic justification, and risk mitigation.

The reporting of this qualitative single-case feasibility study was guided by relevant items from the Standards for Reporting Qualitative Research (SRQR) proposed by O'Brien et al. (2014) and Moore et al. (2026). The SRQR guideline was used to strengthen transparency in reporting the research problem, study design, institutional context, sampling strategy, data collection procedures, data analysis, credibility strategies, study limitations, and implications.

Data were collected through semi-structured interviews, direct observation, and document analysis. Interviews were conducted with three purposively selected informants: the Head of Human Resources and General Affairs, one HR administration and payroll staff member, and the Head of Information Technology. These informants were selected because they represented the strategic, operational, and technical perspectives required to assess ERP feasibility within the HRM unit. The profile and role of each informant are presented in Table 2.

Data collection was conducted during December 2024, and each interview lasted approximately 30-50 minutes. A semi-structured protocol guided the interviews to ensure comparability while still allowing informants to elaborate on operational, technical, and implementation issues.

Table 2
Informant Description

Number	Informant	Position	Role in the Research
1	I1	Head of HR & General Affairs	Strategic perspective on HRM unit policy and performance
2	I2	HR Administration & Payroll Staff	Operational perspective on daily HR, employee data, attendance, leave, and payroll
3	I3	Head of Information Technology	Technical perspective on IT infrastructure and feasibility

The interview guide covered four themes: current HRM workflows, operational problems, expected ERP features, and implementation constraints. Direct observation was conducted during routine HR activities, including attendance processing, leave handling, employee data management, and payroll preparation. Observation notes recorded the actors involved, process steps, tools used, approximate completion time, and observed bottlenecks. Document analysis focused on HR-related SOPs, employee data templates, payroll documents, leave records, organizational charts, and reporting formats.

Data were analyzed through reduction, coding, comparison, and verification. Requirements were coded into HRM process categories and then mapped against Odoo 17 HR features. Triangulation was conducted by comparing interview statements, observed practices, and institutional documents. When discrepancies appeared, the findings were clarified with the relevant informant before being used in the Fit or Gap Analysis, Cost-Benefit Analysis (CBA), technical feasibility assessment, or Risk Assessment Matrix. The coding process was conducted manually by grouping interviews, observation, and document evidence into HRM process categories. The resulting requirement list and fit-gap classification were reviewed with the HR and IT informants to ensure that the interpretation reflected Edu_Inst's actual operational context.

In conducting this study, established research ethics principles for studies involving human participants were observed. All participants provided verbal informed consent prior to data collection, and their identities were protected in accordance with strict confidentiality principles. Informants are identified only by codes (I1, I2, and I3), and the participating institution is referred to by the pseudonym Edu_Inst, so that no individual or organization can be identified. All data were collected, stored, and analyzed in accordance with institutional ethical standards, with access restricted to the research team.

The four feasibility dimensions were assessed by applying distinct analytical lenses to the

coded HRM requirements. Operational feasibility was evaluated through a Fit or Gap Analysis in which each requirement was classified as Fit when Odoo 17 provides the function through standard configuration without additional development, as Partial Fit when it can be supported only through further configuration, localization, third-party modules, integration, or process adjustment, and as Gap when the standard feature set does not directly support it and substantial customization or a separate system would be required.

Technical feasibility was assessed to determine the institution's readiness to deploy Odoo 17 in a cloud-based Software-as-a-Service (SaaS) model, examining internet connectivity, user devices, access rights, backup and recovery, data privacy, deployment options, scalability, and integration needs. Economic feasibility was evaluated through a CBA framed as an opportunity-cost assessment, following the approach of Reyhan et al. (2022), where the benefits represent the estimated value of HR staff time freed by automation. The annual opportunity-cost benefit was calculated by multiplying baseline task hours by the estimated time-reduction rate and an internal hourly-wage proxy (IDR 15,000); the net position was obtained by subtracting the annual subscription cost, so that the payback and return figures represent opportunity-cost equivalents rather than conventional cash-flow returns.

Risk feasibility was assessed with a Risk Assessment Matrix, following Alavi et al. (2021) and Butarbutar et al. (2023), in which each risk was scored for likelihood and impact on a three-point scale (1 = low, 2 = medium, 3 = high) and a composite score was obtained by multiplying the two; these scores were assigned from triangulated evidence across the interviews, observation, document analysis, and the institution's technical conditions, then reviewed against informant statements to ensure that each risk reflected Edu_Inst's actual implementation context before the highest-scoring risks were identified as mitigation priorities.

RESULTS AND DISCUSSION

Results

Operational Fit

The Fit or Gap Analysis identified 21 HRM requirements covering recruitment, employee records, payroll preparation, attendance, leave management, training documentation, performance review, HR reporting, approval workflows, user access, grievance handling, and compliance-related needs. The complete mapping of Edu_Inst's HRM requirements against Odoo 17 features is presented in Table 3. As shown in Table 3, Odoo 17 provides strong support for core HRM administration, particularly employee records, recruitment administration, attendance tracking, leave management, reporting, and workflow automation.

Table 3
Fit or Gap Analysis Result

Number	HRM Requirement	Priority	Odoo 17	Existing System	Remarks
1	Recruitment administration	M	F	G	Standard module; no current digital tool
2	Employee records management	H	F	P	Centralized records vs. scattered spreadsheets
3	Payroll calculation & pay slips	H	P	G	Needs localization for Indonesian payroll components
4	Attendance & leave tracking	H	F	P	Built-in; manual logs at present
5	Training documentation	M	F	G	Module available; not currently tracked
6	Categorize & filter employee data.	H	F	P	Native filtering vs. manual sorting
7	Store scanned documents	H	F	P	Attachment support: physical files now
8	Email communication	L	F	F	Both support emails

Number	HRM Requirement	Priority	Odoo 17	Existing System	Remarks
9	Performance reviews	M	F	G	Appraisal module: no current process
10	HR reporting	M	F	P	Auto-generated reports vs. manual
11	Approval workflows	H	F	G	Configurable workflows; manual approvals now
12	Leave balance tracking	H	F	G	Automatic balances; manual calculation now
13	Multi-level user access	H	F	P	Role-based access control
14	Attendance-device integration	M	P	G	Requires connector configuration
15	Grievance & disciplinary handling	H	P	G	No dedicated module; needs customization
16	Promotions & career tracking	M	F	G	Supported via contract records
17	Employee onboarding	L	F	G	Onboarding module available
18	Self-service portal	H	P	G	Limited self-service; needs configuration
19	Real-time analytics	L	F	G	Dashboards available
20	Payroll-financial integration	H	P	G	Partial; requires accounting-module setup
21	BPJS & labor-law compliance	H	P	G	Not built-in; requires localization

Priority: H = High, M = Medium, L = Low. Degree of fit: F = Fit, P = Partial Fit, G = Gap.

Based on Table 3, several requirements should be interpreted conservatively as Partial Fit rather than Full Fit. Payroll calculation and pay slip generation remain Partial Fit because standard ERP payroll functions still require validation for Indonesian tax and BPJS, as well as banking integration. Attendance tracking and leave management may be classified as Fit when using Odoo's standard attendance and time-off functions, but should be classified as Partial Fit if Edu_Inst requires integration with existing attendance devices or external attendance systems. Compliance with Indonesian labor regulations, tax, and BPJS reporting should also be classified as Partial Fit because, as Sholeh et al. (2025) and Zuma and Sibindi (2023) note, these features depend on localization packages, third-party modules, or local implementation support.

The operational analysis in Table 3 indicates that Odoo 17 is not a fully plug-and-play solution for all HRM requirements at Edu_Inst. The system can support most administrative functions, but requirements related to payroll localization, grievance documentation, employee self-service access, and integration with existing systems require further configuration or validation. This finding is consistent with ERP implementation studies by Imane et al. (2022) and Widodo and Sarah (2022), which show that operational feasibility depends not only on feature availability but also on business-process alignment and organizational readiness.

Technical Readiness

The technical feasibility assessment indicates that Edu_Inst has adequate basic readiness for cloud-based deployment. The HR unit has sufficient user devices for the two primary HR users, and the availability of redundant internet connectivity reduces the risk of service interruption. A SaaS deployment model also reduces the need for local server procurement and maintenance, which is suitable for a small institution with limited IT capacity. However, as Ayush et al. (2024), Salih et al. (2021), and Zuma and Sibindi (2023) emphasize, technical readiness should not be limited to hardware and connectivity readiness; it must also include access control, data governance, backup verification, and user support procedures.

Data privacy and access control remain critical considerations, as the HRM module will store sensitive employee information, including personal data, employment records, leave history, and payroll information. As recommended by Qazi et al. (2026) and Salih et al. (2021), Edu_Inst must verify the service terms, data-processing arrangements, backup provisions, and role-based access configuration before implementation. Access should be limited to authorized HR users, with different permission levels assigned to the Head of HR and HR staff. The institution should also establish internal procedures for password management, user deactivation, periodic access review, and employee data retention, according to Alavi et al. (2021) and Butarbutar et al. (2023).

Economic Value

The economic feasibility analysis applies CBA as an opportunity-cost evaluation. The benefits do not represent additional cash inflows, direct salary reductions, or personnel cost savings. Instead, they represent the estimated value of HR staff time that could be freed through automation and redirected to higher-value work. The annual opportunity-cost benefit is calculated by multiplying the baseline task hours, the estimated time-reduction rate, and an internal hourly-wage proxy. The annual net opportunity-cost benefit is then obtained by subtracting the annual subscription cost. This approach is consistent with CBA studies by Reyhan et al. (2022), which assign monetary value to operational improvements, including both tangible and intangible benefits.

A key assumption in this analysis is that the time freed by automation is redeployed to higher-value HR activities. Because Edu_Inst has only two HR staff members and the proposed implementation does not reduce personnel, the estimated benefit is economically meaningful only if the saved hours are redirected to activities such as data validation, compliance monitoring, employee data governance, faster reporting, and HR service improvement. The quantified benefit should therefore be read as a productivity-value estimate under a redeployment assumption, not as direct financial savings, an interpretation consistent with ERP value-realization studies, as Anaya and Qutaishat (2022) and Butarbutar et al. (2023) assert that ERP benefits depend on organizational use and post-implementation capability rather than on software adoption alone.

Baseline workload. Baseline HR workload estimates were derived from observation notes, HR activity records, and validation with HR informants; each process was calculated by multiplying the estimated task duration by its annual frequency. The hiring workload was based on six recruitment cycles per year, averaging approximately 7.5 hours per cycle (45 annual hours). Employee data management averaged approximately 7.8 hours per month (93.3 hours per year). Payroll administration required approximately 12 hours per monthly cycle (144 annual hours). Because these durations are informant-validated approximations rather than time-and-motion measurements, they are treated as point estimates with inherent uncertainty; the recruitment figure, in particular, is conservative given the high applicant volume, and the sensitivity analysis below is intended to bound this uncertainty rather than assume the estimates are exact.

Wage-rate proxy (derivation). HR staff time was valued at an internal proxy of IDR 15,000 per hour. This rate was obtained by dividing the average monthly HR-staff functional compensation ($\approx$ IDR 2,922,750) by the standard monthly working hours (194.85 hours, i.e., 45 hours per week $\times$ 4.33 weeks). It represents an opportunity-cost valuation rather than a market-wage benchmark. Two caveats follow. First, IDR 15,000 per hour is close to the prevailing regional minimum wage on an hourly basis, so it is a deliberately conservative lower bound that, if anything, understates the value of professional HR time, particularly that of the Head of HR. Second, the benefit scales linearly with this rate, so the wage-rate assumption is as decisive for the economic verdict as the time-reduction assumption. Its effect is therefore tested explicitly in the sensitivity analysis (Table 6, Panel C).

Subscription cost (basis). The annual subscription cost of IDR 3,663,000 corresponds to one paid user on the Odoo Online Standard plan covering the Employees, Recruitment, Time Off, Attendances, and Payroll applications. This estimate assumes one paid administrative user during the initial pilot stage. If Edu_Inst later assigns two paid HR users, the subscription cost should be adjusted accordingly. The estimate assumes a price of approximately USD 22.60 per user per month on an annual billing plan, with an exchange rate of approximately IDR 13,500/USD.

Because Odoo pricing may vary by region, billing period, promotion, and implementation option, this cost basis should be rechecked at the time of submission and before any procurement decision.

As shown in Table 4, the three recurring HR processes account for 282.3 annual work hours. Using the internal wage-rate proxy of IDR 15,000 per hour, the total annual opportunity-cost equivalent is IDR 4,234.5 thousand.

Table 4
HR Cost Displacement Benefit from Using Odoo ERP

Number	Process	Task Volume	Annual Work Hours	Derivation of Annual Work Hours	Hourly Wage Rate	Annual Opportunity-Cost Equivalent
1	Hiring Process	6 job postings, ~1,000 applicants	45	6 recruitment cycles × approximately 7.5 hours per cycle	15.0	675.0
2	Employee Data Management	Routine data entry and retrieval	93.3	Approximately 7.8 hours per month × 12 months	15.0	1,399.5
3	Payroll Administration	Payroll for 150 employees	144	12 payroll cycles × approximately 12 hours per cycle	15.0	2,160.0
Total			282.3			4,234.5

Note: All monetary amounts are in thousands of IDR. The hourly wage rate of 15.0 corresponds to IDR 15,000 per hour and is used as an internal proxy derived from institutional wage data (see derivation above). The opportunity-cost equivalent reflects the estimated value of HR staff time that could be reallocated to higher-value HR activities through ERP-based automation.

The annual opportunity-cost equivalent does not automatically become an economic benefit unless Edu_Inst deliberately reallocates the freed HR capacity to value-adding activities. If the saved time is not redeployed, the benefit remains a notional efficiency gain rather than a realized organizational benefit. Based on the work of Anaya and Qutaishat (2022) and Butarbutar et al. (2023), the scenario analysis should therefore be read under the assumption that automation-enabled time savings are actively translated into improved HR service delivery, stronger data governance, better compliance monitoring, or more timely managerial reporting.

The scenario comparison in Table 5 shows that economic feasibility is highly sensitive to the realized time-reduction rate. At 30%, 50%, and 70% time reduction, the annual opportunity-cost benefit remains below the annual subscription cost; only the 100% full-displacement scenario generates a positive recurring net benefit. This 100% case, however, is the most optimistic boundary condition rather than a realistic expectation: for payroll, attendance, and employee data management, complete elimination of staff time is implausible, as HR personnel must still validate data, review payroll results, resolve anomalies, handle inquiries, and ensure compliance.

Table 5
Cost-Benefit Analysis – Scenario Comparison

Time-Reduction Scenario	Recurring Annual Benefit	Annual Subscription Cost	Recurring Net Position	Payback (External)	Payback (Internal)
Conservative (30%)	1,270.4	3,663	-2,392.7	Never	Never
Moderate (50%)	2,117.3	3,663	-1,545.8	Never	Never
Optimistic (70%)	2,964.2	3,663	-698.9	Never	Never

Time-Reduction Scenario	Recurring Annual Benefit	Annual Subscription Cost	Recurring Net Position	Payback (External)	Payback (Internal)
Full displacement (100%)	4,234.5	3,663	+571.5	41.4 years	≈ 7.4 years

Note: All monetary amounts are in thousands of IDR, except percentages and years. One-time external-training cost of IDR 19,425 thousand applies in Year 1 under the external-training scenario only; internal training eliminates it. Recurring net position = recurring annual benefit – annual subscription cost. Only the 100% full-displacement scenario yields a positive recurring net benefit. This scenario should be treated as an upper-bound estimate, not as the expected outcome.

The payback period uses the recurring annual net opportunity-cost benefit generated after the first implementation year. Year 1 is treated as the implementation year, so productivity benefits are assumed to begin in Year 2:

$$\text{Payback period} = 1 + [(\text{one-time training cost} + \text{Year 1 subscription cost}) \div \text{recurring annual net opportunity-cost benefit}].$$

For the external-training scenario, the one-time training cost is IDR 19,425,000 and the Year 1 subscription cost is IDR 3,663,000; under the 100% scenario, the recurring annual net benefit is IDR 571,500, giving $1 + [(19,425,000 + 3,663,000) \div 571,500] = 41.4$ years. For internal training, the one-time cost is eliminated, giving $1 + [3,663,000 \div 571,500] \approx 7.4$ years.

Sensitivity analysis. To avoid overstating the project's robustness, sensitivity was tested across three variables, reported as panels in Table 6. Panel A varies time savings around the 100% upper-bound base case (the only scenario in Table 5 with a positive recurring net benefit). Panel B repeats the test around the more realistic 50% moderate scenario. Panel C added here varies the wage-rate proxy while holding time reduction at the realistic 50% level, because the benefit is equally sensitive to how HR time is valued. A panel tests external-training-cost sensitivity. This multi-variable approach is consistent with ERP studies that stress the importance of testing benefits under different adoption and valuation conditions ([Anaya & Qutaishat, 2022](#); [Butarbutar et al., 2023](#)).

Table 6
Sensitivity Analysis – Key Variables

Sensitivity Base	Variable Change	Time- Reduction Equivalent	Annual Benefit	Annual Net Benefit	External- Training Payback	Internal- Training Payback	Interpretation
Panel A: Full- displacement upper bound	+20% hours saved	120%	5,081.4	1,418.4	17.3 years	3.6 years	Outlook improves, but the assumption exceeds full displacement and serves only as a stress test.
Panel A: Full- displacement upper bound	Base (0%)	100%	4,234.5	571.5	41.4 years	7.4 years	Payback occurs only under the most optimistic full- displacement assumption.

Sensitivity Base	Variable Change	Time-Reduction Equivalent	Annual Benefit	Annual Net Benefit	External-Training Payback	Internal-Training Payback	Interpretation
Panel A: Full-displacement upper bound	-20% hours saved	80%	3,387.6	-275.4	Never	Never	A modest decline from full displacement turns the net benefit negative.
Panel B: Moderate scenario	+20% hours saved	60%	2,540.7	-1,122.3	Never	Never	Even with a 20% improvement, benefits do not cover the subscription.
Panel B: Moderate scenario	Base (0%)	50%	2,117.3	-1,545.8	Never	Never	The moderate scenario remains negative at the base wage rate.
Panel B: Moderate scenario	-20% hours saved	40%	1,693.8	-1,969.2	Never	Never	A decline from the moderate scenario further weakens the case.
Panel C: Wage rate (at 50% time reduction)	IDR 15,000/hour (base proxy)	50%	2,117.3	-1,545.8	Never	Never	Base proxy $\approx$ regional minimum wage; the moderate scenario is negative.
Panel C: Wage rate (at 50% time reduction)	IDR 25,000/hour	50%	3,528.8	-134.2	Never	Never	Near breakeven, a modest revaluation of HR time almost covers the subscription.
Panel C: Wage rate (at 50% time reduction)	IDR 35,000/hour	50%	4,940.2	+1,277.2	19.1 years	3.9 years	Above breakeven, internal-training payback becomes practical.

Note: All monetary amounts are in thousands of IDR. Annual net benefit = annual benefit – annual subscription cost. Panel A anchors on the 100% upper-bound case; Panels B and C both anchor on the more realistic 50% time-reduction scenario, varying the hours saved and the wage-rate proxy, respectively. In Panel C, only the wage rate changes; the 50% time-reduction equivalent is held constant. Payback is reported only when the recurring annual net benefit is positive.

Breakeven wage thresholds. Holding everything else constant, the wage rate at which the annual benefit equals the annual subscription cost is approximately IDR 43,300 per hour at a 30% time reduction, IDR 26,000 per hour at a 50% time reduction, IDR 18,500 per hour at a 70% time reduction, and IDR 13,000 per hour at a 100% time reduction. At the realistic 50% scenario, the

case therefore breaks even once HR time is valued at about IDR 26,000 per hour, a level plausibly reached by professional HR staff, and especially by the Head of HR, whose compensation typically exceeds the regional minimum wage. This is the pivotal qualification to the economic verdict: whether Odoo 17 is economically justified at Edu_Inst depends not only on how much time is saved but equally on how that time is valued.

Taken together, Tables 5 and 6 show that the financial outcome is fragile and conditional rather than robust. Anchored on the 100% upper bound, a 20% reduction in assumed hours saved turns the net benefit negative; anchored on the realistic 50% scenario at the IDR 15,000 proxy, the case never reaches breakeven on time savings alone. However, Panel C shows that the same realistic 50% scenario becomes viable, with an internal-training payback of about 4 years, once HR time is valued at IDR 35,000 per hour or more. The economic case for Odoo 17 should therefore be presented not as a short-term cost-saving measure but as a process-improvement and data-governance investment whose justification depends jointly on realized time savings, internal training, deliberate redeployment of freed capacity, and a realistic valuation of HR staff time. Following the recommendations of Butarbutar et al. (2023), a pilot implementation is recommended before full adoption to validate both the time savings and the wage-rate assumptions underpinning this analysis.

Implementation Risk

Six implementation risks were scored for likelihood and impact, each on a three-point scale, and positioned in the risk matrix in Table 7 by composite score. No risk falls in the low-impact band, and the profile clusters in the higher-impact and higher-likelihood cells: three risks occupy the medium-likelihood/high-impact cell and one the high-likelihood/medium-impact cell, while the remaining two fall in the low-likelihood/high-impact and medium-likelihood/medium-impact cells. The four highest-scoring risks therefore concentrate in the medium-likelihood/high-impact and high-likelihood/medium-impact regions.

Table 7

Risk Assessment Matrix

Impact \ Likelihood	Low (1)	Medium (2)	High (3)
High (3)	R001	R002, R004, R006	
Medium (2)		R005	R003
Low (1)			

Note: Risk codes are positioned by impact (rows) and likelihood (columns). Risk score = likelihood × impact; the highest-scoring risks (R002, R003, R004, R006, each scoring 6) are the high-priority risks for mitigation.

The detailed risk register in Table 8 reports the likelihood, impact, composite score, priority level, and recorded mitigation action for each priority risk. Four risks reached the highest composite score of 6. They were classified as high priority (data migration (R002), internet-connectivity dependence (R003), training effectiveness (R004), and data privacy and access control (R006)) while resistance to change (R001, score 3) and implementation delays (R005, score 4) were classified as medium priority. No risk was scored below 3.

Table 8

Risk Register

Risk Code	Risk	Likelihood	Impact	Risk Score	Priority	Mitigation
R001	Resistance to Change	1	3	3	Medium	Change management, communication, and user involvement
R002	Data Migration Issues	2	3	6	High	Data cleansing, test migration, and validation
R003	Internet Connectivity Dependence	3	2	6	High	Backup ISP, mobile hotspot, and network redundancy

Risk Code	Risk		Likelihood	Impact	Risk Score	Priority	Mitigation
R004	Training Effectiveness		2	3	6	High	Tailored training, hands-on practice, and follow-up support
R005	Implementation Delays		2	2	4	Medium	Phased implementation, temporary support, and timeline monitoring
R006	Data and Control	Privacy Access	2	3	6	High	Role-based access control, encryption, audit logging, and regular backups

Note: Risk score = likelihood × impact (on a scale of 1–3 each). Priority reflects the resulting score: High = 6, Medium = 3–4. Mitigation is summarized as a single phrase per risk.

Discussion

The operational findings indicate that Odoo 17 is not a fully plug-and-play solution for Edu_Inst. The absence of full Gaps shows that no requirement is entirely unsupported. However, the concentration of Partial Fits in high-priority, compliance-sensitive functions (payroll, BPJS and tax reporting, and system integration) means that feasibility hinges on configuration and localization rather than on raw feature availability. This is best explained through business-process alignment: in the fit-gap decision model proposed by Imane et al. (2022), ERP value depends on how well standard features map onto an organization's actual processes, and the gap widens precisely where local statutory and procedural specificity is highest. For Edu_Inst, the practical implication is that the Partial-Fit items, not the Fit items, will drive implementation effort and cost.

Technically, the redundant connectivity and adequate devices remove the most common infrastructure barriers to SaaS adoption for a small institution. The more consequential finding is that access control, data-processing terms, and backup verification remain undefined. Because the module stores sensitive personal and payroll data, the deployment's feasibility depends on establishing data governance controls (role-based permissions, retention rules, and periodic access reviews) before go-live rather than after. In this sense, technical readiness here is less a hardware question than a governance question.

The economic results are the pivotal finding, and they are deliberately conservative. Because the analysis values freed staff time as an opportunity cost rather than as cash, the quantified benefit becomes a real organizational gain only if the released time is actively redeployed to higher-value work such as data validation, compliance monitoring, and faster reporting. With only two HR staff and no headcount reduction, the displaced hours do not convert into cash; they convert into capacity. This is why the single financially positive case (the 100% full-displacement scenario) must be read as a theoretical upper bound rather than an expectation: payroll for roughly 150 employees, attendance, and data management will continue to require verification, exception handling, and compliance review, so complete elimination of staff time is implausible. The sensitivity analysis reinforces this fragility, since the positive case reverses with only a 20% reduction in assumed hours saved, and the more realistic 50% scenario never reaches breakeven. The economic evidence, therefore, indicates that adopting Odoo 17 at Edu_Inst cannot be justified as a short-term cost-saving measure; it is more accurately framed as a process-improvement and data-governance investment whose returns are largely non-financial, an interpretation aligned with the argument by Anaya and Qutaishat (2022) that ERP value accrues through organizational use and process change rather than through acquisition itself.

The risk profile is consistent with these findings. The two controllable high-priority risks, data migration (R002) and training effectiveness (R004), are also the ones most likely to determine whether the projected time savings materialize, because inaccurate migrated data or under-trained users would erode exactly the efficiency on which the economic case depends. Connectivity dependence (R003) is the principal external risk and is already partially offset by the redundant connection identified in the technical assessment, while data privacy and access control (R006) map directly onto the governance gap noted above. Mitigation should therefore be

sequenced to protect the benefit case: data cleansing and test migration, tailored hands-on training, and access-control design before full deployment.

Theoretically, these findings extend ERP feasibility assessment by showing that, in a small, resource-constrained setting, the binding constraint is not feature coverage but the interaction among localization, training strategy, and the organization's willingness to redeploy freed capacity. Practically, the integrated four-dimensional assessment lets decision-makers see, before committing funds, that an apparently "feasible" system can still be economically unjustified under realistic assumptions, and it identifies which levers (internal training, redeployment, and compliance localization) change that verdict.

Beyond the Indonesian setting, the pattern observed at Edu_Inst reflects a broader international problem: small organizations and educational institutions in many resource-constrained contexts face the same tension between the low entry cost of cloud ERP and the limited monetary value of the administrative time it displaces. The transferable contribution of this case is therefore not the specific rupiah figures but the insight that, for small HR units anywhere, the economic justification for ERP rests on non-financial outcomes (data quality, process reliability, and information governance) rather than on labor-cost displacement. This reframing speaks to broader cross-context discussions of ERP value realization in education and suggests that international feasibility frameworks should weigh governance and capability outcomes rather than payback alone.

The novelty of the study lies in this integration. As summarized in Table 1, prior work has examined ERP strategic feasibility, fit-gap alignment, economic evaluation, or risk prioritization largely in isolation. In contrast, this study combines all four within a single, opportunity-cost-aware framework for a small K-9 institution and uses that combination to surface a feasibility verdict that any single dimension would have missed.

This study has several limitations. It examines a single small educational institution, so the findings are contextual rather than statistically generalizable. The economic estimates rest on observed and informant-validated time approximations rather than post-implementation measurements, and the wage rate is a simplified internal proxy. The fit-gap classification reflects the Odoo 17 feature set and the institution's requirements at the time of analysis; future releases, localization packages, or third-party modules could change it. Finally, the study assesses pre-implementation feasibility and does not measure realized adoption or benefits after deployment.

CONCLUSION

This study concludes that Odoo 17 ERP is operationally and technically feasible for supporting HRM processes at Edu_Inst. The Fit or Gap Analysis in Table 3 shows that most core HRM requirements can be supported by Odoo 17, particularly employee data management, recruitment administration, attendance tracking, leave management, reporting, and workflow automation. However, several requirements remain Partial Fits, particularly Indonesian payroll compliance, BPJS and tax reporting, grievance management, employee self-service access, and integration with existing systems; these areas require further validation, localization, configuration, or third-party support before implementation. Edu_Inst also has adequate basic readiness for cloud-based deployment because the HR unit has sufficient user devices and redundant internet connectivity. Nevertheless, the CBA results in Tables 5 and 6 indicate that Odoo 17 does not provide a strong short-term financial return under conservative, moderate, or realistic-optimistic time-reduction scenarios. Positive payback appears only in the 100% full-displacement scenario, which represents an optimistic upper bound and is unlikely to occur fully because payroll processing, attendance monitoring, and employee data management still require verification, exception handling, compliance review, and employee support. Thus, Odoo 17 is operationally and technically feasible, while its financial feasibility remains conditional and should not be overstated.

The economic value of implementation depends on whether the institution redirects freed HR time to higher-value activities, including compliance monitoring, data validation, workforce planning, faster reporting, and stronger HR process governance. Accordingly, the adoption decision should consider not only quantified opportunity-cost benefits but also improved data quality, process reliability, reporting speed, service consistency, and information governance.

Edu_Inst should implement Odoo 17 gradually through a pilot project focused on employee data management, leave management, attendance monitoring, and recruitment administration, while payroll localization and compliance-related functions should proceed only after validation with an Odoo partner or local payroll specialist. Based on the risk priorities in Table 8, internal training, data cleansing, access-control design, user support, and backup procedures should be completed before full deployment. Future studies should validate the estimated productivity gains using post-implementation data and compare Odoo's feasibility with alternative Human Resource Information System (HRIS) or ERP solutions in similar educational institutions.

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AUTHOR CONTRIBUTION STATEMENT

Ihza Fajrur Rachman Hasani, Ni Wayan Trisnawaty, and Teguh Raharjo contributed to the conception and design of the study, data interpretation, manuscript preparation, and critical revision. All authors reviewed and approved the final version of the manuscript.

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