

Automation of Receivables, Payables and Reinsurance Finance Processes in the Insurance Sector

Muhammad Zeeshan Qureshi^{1*} 

¹Independent Researcher

*Corresponding Author

Muhammad Zeeshan Qureshi

Independent Researcher

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Abstract: Insurance finance functions continue to encounter challenges from fragmented policy, claims, broker, bank, and reinsurance data, even when core underwriting and claims platforms are digitally advanced. This review evaluates the potential for intelligent automation to transform receivables, payables, and reinsurance finance processes into a unified, controlled operating system instead of isolated efficiency initiatives. A structured integrative review was conducted, drawing on peer-reviewed research and credible regulatory or standard-setting publications from 2020 to 2025. Evidence was systematically coded by process scope, technology, control design, performance effects, implementation conditions, and insurance-specific accounting requirements. The findings show that robotic process automation is most effective for stable, rule-based activities, while document intelligence, machine learning, application programming interfaces, workflow orchestration, and process mining extend automation to unstructured documents, exception prediction, continuous reconciliation, and operational monitoring. Automation of receivables enhances cash application, ageing visibility, dispute routing, and collection prioritisation. Automation of payables improves invoice capture, matching, approval, duplicate detection, and payment control. Reinsurance automation delivers additional value through contract-data standardisation, bordereaux validation, ceded-premium calculation, recoverable tracking, settlement matching, and IFRS 17 data lineage. Realising these benefits depends on process redesign, master-data quality, segregation of duties, human review of material exceptions, cyber resilience, and accountable model governance. This paper presents an integrated target architecture, a staged maturity pathway, and a balanced performance framework encompassing speed, accuracy, liquidity, compliance, resilience, and stakeholder outcomes.

Keywords: Insurance finance; receivables; accounts payable; reinsurance; robotic process automation; intelligent automation; IFRS 17; process mining.

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1. INTRODUCTION

The insurance sector converts large volumes of contractual and event-based information into financial transactions. Premium invoices, broker statements, claims payments, commissions, supplier invoices, taxes, facultative placements, treaty

accounts, and reinsurance recoveries travel through different systems and organisations before they are recognised, settled, and reported. The resulting finance environment is unusually dependent on data received from policy administration, claims, brokers, third-party administrators, banks, reinsurers, and

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legacy spreadsheets. A transaction can therefore be economically valid while remaining operationally unresolved because a reference is missing, a document is inconsistent, a counterparty uses a different format, or the accounting system cannot match the item automatically. These conditions generate ageing balances, suspense accounts, duplicated work, delayed recoveries, inaccurate cash forecasts, and costly month-end reconciliation.

Recent automation research provides a useful but incomplete basis for addressing this problem. Robotic process automation (RPA) can reproduce repetitive user actions across existing applications and is particularly suitable when tasks are digital, rule based, high volume, and stable (Hofmann et al., 2020; Syed et al., 2020; Wewerka & Reichert, 2023). Implementation studies nevertheless show that automating an unstable or poorly controlled process may simply accelerate defects, while fragile screen-level scripts can fail when interfaces or business rules change (Santos et al., 2020; Herm et al., 2023). Intelligent automation therefore goes beyond bots. It combines workflow, document intelligence, machine learning, business rules, process mining, integration services, and human decision points. This broader concept is important in insurance because finance processes include both deterministic calculations and judgement-intensive exceptions.

Insurance-specific developments further increase the need for consolidated finance automation. IFRS 17 requires granular, traceable information about insurance and reinsurance contracts and has intensified the connection between actuarial calculations, subledgers, general ledgers, disclosures, and controls (IFRS Foundation, 2023). Digital Operational resilience requirements also make availability, change management, incident reporting, third-party dependencies, and recoverability central design concerns rather than technical afterthoughts (European Parliament and Council, 2022). At the same time, supervisory publications recognise that digitalisation and artificial intelligence can improve insurance operations yet require fairness, transparency, accountability, data governance, and effective human monitoring (EIOPA, 2021, 2024; IAIS, 2023, 2025). Consequently, the relevant research question is not whether finance tasks can be automated, but how insurers can automate end-to-end cash and reinsurance flows without weakening accounting integrity or functional resilience.

This review retains that practical process orientation while widening the scope from receivables alone to the connected receivables, payables, and reinsurance finance cycle. It also

replaces an empirical mixed-method design with a structured review methodology that is more appropriate for synthesising current academic, professional, regulatory, and accounting evidence. The contribution is an insurance-specific operating model that links technology choices to process characteristics, control requirements, and verifiable outcomes.

2. Aim, Objectives, and Review Questions

The aim of the study is to develop an evidence-based framework for automating receivables, payables, and reinsurance finance processes in insurance organisations while preserving financial control, regulatory compliance, and business continuity. Four objectives guide the review: first, to identify automation use cases and enabling technologies across the three process domains; second, to evaluate the operational, liquidity, reporting, and control outcomes associated with those use cases; third, to determine the organisational, data, governance, and technology conditions required for sustainable implementation; and fourth, to propose an integrated target architecture, maturity pathway, and performance framework suitable for insurers. The review asks how process characteristics influence technology selection, where automation creates the greatest value, which risks must be controlled, and how an insurer should sequence transformation from fragmented task automation to intelligent end-to-end orchestration.

3. Conceptual Foundations

Receivables, payables, and reinsurance finance are commonly managed as separate functions, yet they share a common control logic. Each begins with an obligation established by a contract or approved event, requires validated data and supporting evidence, generates an accounting entry, moves cash between counterparties, and ends with reconciliation and closure. Their differences concern direction, complexity, and uncertainty. Receivables focus on premiums, fees, coinsurance balances, salvage, subrogation, and other amounts due to the insurer. Payables include claims, commissions, refunds, taxes, operating suppliers, professional services, and distribution charges. Reinsurance finance contains both payable and receivable components because ceded premiums, commissions, reinstatement premiums, deposits, claims recoveries, and profit commissions may move in different directions under treaty terms.

RPA is a lightweight automation mechanism that interacts with applications through the user interface and can connect systems without instant core replacement (Hofmann et al., 2020; Moreira et al., 2023). Its speed of deployment makes it attractive

for finance, but its suitability depends on transaction standardisation, low ambiguity, stable rules, and reliable access rights. Research recognizes governance, process selection, business and information-technology collaboration, change management, skills, infrastructure, and security as critical success factors (Gotthardt et al., 2020; Plattfaut et al., 2022). These data suggest that bots should be treated as controlled digital workers with identities, role profiles, logs, schedules, exception queues, ownership, and lifecycle management.

Intelligent document processing adds optical character recognition, classification, entity extraction, and validation to convert invoices, statements, bordereaux, and remittance documents into structured records. Deployed accounts-payable research demonstrates that artificial intelligence can automate vendor identification, purchase-order matching, coding, and other invoice tasks while routing uncertain cases to people (Tater et al., 2022). Machine learning can also rank collection accounts, predict payment delays, detect duplicate or anomalous invoices, and estimate the probability that a reinsurance recovery will require intervention. These models should support rather than obscure accountable decisions. Insurance supervisors consequently emphasise explainability, data quality, fairness, proportionality, documentation, and human monitoring throughout the model lifecycle (EIOPA, 2021; IAIS, 2025).

Process mining complements automation by reconstructing actual workflows from event logs. It reveals variants, rework loops, waiting time, control bypasses, and bottlenecks that traditional procedure documents often miss. Evidence indicates that process mining creates value by making end-to-end behaviour visible, enabling shared interpretation, supporting evidence-based decisions, and measuring interventions (Badakhshan et al., 2022). In insurance finance, this ability can distinguish a genuine collection problem from a policy-data issue, an approval delay, a bank-reference failure, or a disputed treaty calculation. Automation design can then target fundamental issues rather than merely transferring work from one queue to another.

4. REVIEW METHODOLOGY

A structured integrative literature review was selected because the topic combines information systems, accounting, insurance operations, regulation, and reinsurance practice. The reporting logic was informed by PRISMA 2020, particularly its attention to transparent identification, screening, eligibility, and synthesis, but the study was not designed as a clinical meta-analysis (Page *et al.*, 2021). Searches were framed around combinations of insurance, reinsurance, receivables, accounts

receivable, payables, accounts payable, cash application, settlement, RPA, intelligent automation, artificial intelligence, document processing, process mining, IFRS 17, digital resilience, and finance transformation.

The review window covered January 2020 through December 2025. Eligible evidence included peer-reviewed journal articles, refereed conference papers reporting implemented systems, and official publications from insurance supervisors, accounting standard setters, recognised standards bodies, and market institutions. Sources were included when they addressed at least one of five areas: automation technology and implementation; finance or accounting process automation; insurance digitalisation and AI governance; reinsurance accounting or settlement; or business continuity and information security. Sources were excluded when they lacked identifiable authorship or institutional responsibility, repeated unsupported vendor claims, focused only on customer-facing marketing, or predated the review window.

The final evidence base was analysed through thematic coding. Each source was coded for process domain, task, data type, automation mechanism, degree of human judgement, expected benefit, reported limitation, control implication, and maturity level. Academic studies were used primarily to explain mechanisms, implementation conditions, and observed operational effects. Regulatory and standard-setting sources were used to establish requirements concerning governance, accounting, resilience, and risk. Because published evidence directly measuring reinsurance finance automation remains limited, the synthesis applied established automation principles to reinsurance tasks only where the process logic was supported by IFRS 17, market-modernisation, or supervisory material. This method avoids presenting speculative performance estimates as empirical facts.

Quality assessment considered relevance, transparency of method, credibility of publication channel, practical specificity, and agreement with other evidence. Greater weight was assigned to studies with clear research designs, documented implementations, or direct regulatory authority. Narrative synthesis was chosen because process definitions, technologies, and outcome metrics were heterogeneous. The review therefore does not calculate a pooled effect size. Instead, it develops a configurational explanation: automation outcomes depend on the fit among process stability, data quality, technology capability, governance, and human expertise.

5. Review Findings

The evidence supports an integrated operating model in which source transactions enter a common orchestration and control layer before being posted, settled, reconciled, and analysed. Figure 1 presents this model. It does not imply a single software product. Rather, it defines the capabilities

that must work together: trusted data intake, rules and workflow, document intelligence, RPA or APIs, exception management, accounting integration, reconciliation, analytics, access control, and audit evidence. The model reduces dependence on manual hand-offs while preserving explicit ownership of material decisions.

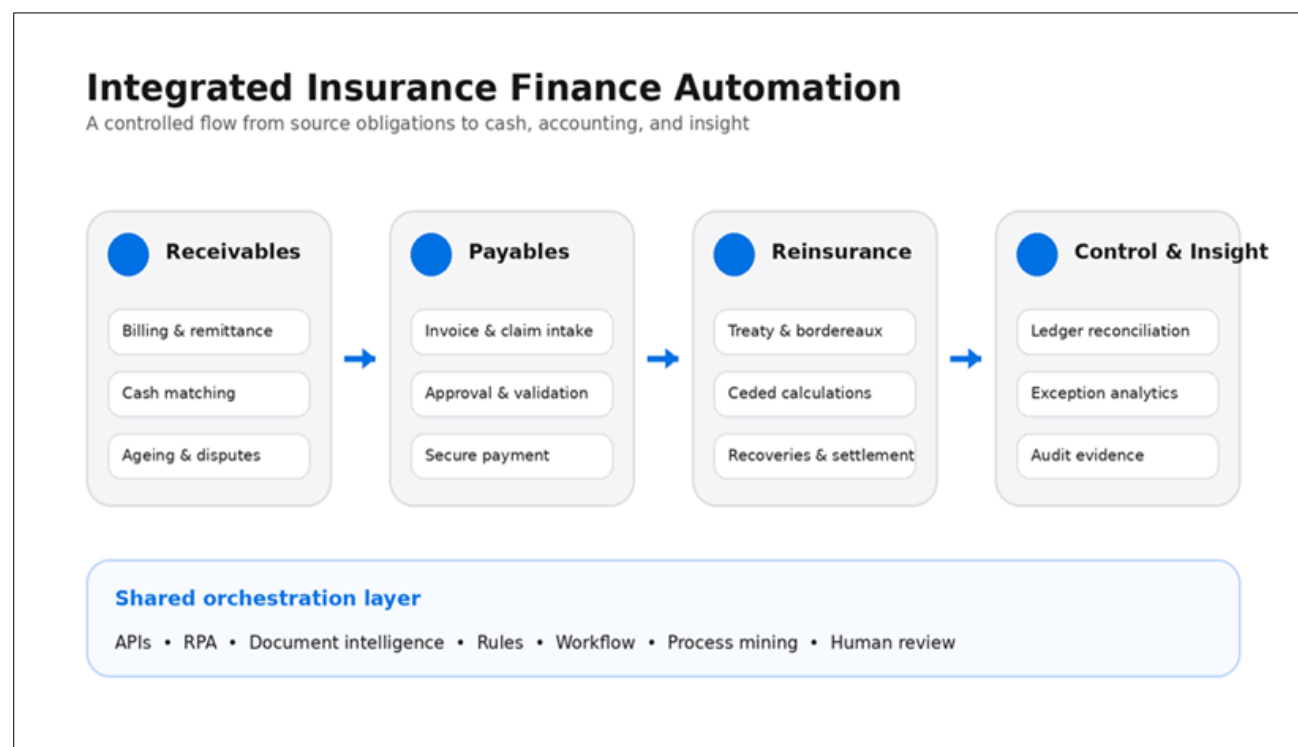


Figure 1: Integrated operating model for insurance receivables, payables, and reinsurance finance automation

5.1 Receivables automation

Insurance receivables are generated through premium billing, broker accounting, direct debit, instalments, coinsurance, recoveries, fees, and other contractual amounts. Manual operations frequently depend on spreadsheets that combine expected amounts, bank receipts, policy references, broker statements, and follow-up notes. The first automation priority is therefore transaction identification. Bank feeds, payment gateways, lockbox files, virtual accounts, and broker remittance data can be ingested automatically. Rules can then match cash using policy number, invoice number, payer, amount, currency, value date, and permissible tolerance. When exact matching fails, probabilistic matching can propose candidates, but low-confidence results should remain in a controlled suspense queue.

Automated cash application changes the role of collections. Staff no longer spend most of their time searching for payment references or copying balances between files. Instead, the system can segment accounts by due date, value, dispute status, customer importance, broker relationship, expected

payment behaviour, and regulatory restrictions. Workflow can generate reminders, assign tasks, escalate overdue items, and preserve a complete communication trail. Machine-learning prioritisation may improve focus, but the decision logic must avoid unfair treatment and should be explainable to managers. OECD (2020) and EIOPA (2021) both stress that insurance analytics should be governed across data, model, and decision stages, a principle that applies even when the model affects collection effort rather than underwriting.

Receivables automation additionally strengthens control. Automated ageing reports can reconcile the subledger, general ledger, bank, and billing system daily instead of waiting for month end. Rules can identify credit balances, duplicate receipts, unapplied cash, overdue instalments, cancelled policies with open balances, and receipts posted after coverage termination. Process mining can reveal whether delays arise before invoice generation, during broker transmission, after customer dispute, or within internal approval. The result is a shift from aggregate ageing management to cause-based

intervention. However, automation cannot correct unclear contractual terms, inaccurate customer master data, or inconsistent broker arrangements. These issues require process and data ownership.

5.2 Payables automation

Insurance payables include high-volume operating invoices and insurance-specific disbursements. The operating-invoice process is well suited to document intelligence because invoices arrive in multiple layouts but contain recurring entities such as supplier, tax registration, purchase order, amount, currency, bank details, and line items. Research on AI-enabled accounts payable shows that document models, semantic matching, and configurable validation can reduce manual handling while maintaining exception review (Rohaime *et al.*, 2022; Tater *et al.*, 2022; Kanaparthi, 2023). A target workflow captures the document, validates the supplier, checks duplicates, matches purchase order and receipt evidence, recommends coding, verifies tax treatment, routes approval, schedules payment, and archives the audit trail.

Claims and commission payables require additional controls. A claims payment should originate from an authorised claim decision, comply with policy limits and deductibles, use verified beneficiary details, and respect sanctions, fraud, and delegated-authority rules. Automation can transfer approved payment instructions, verify completeness, apply thresholds, generate bank files, and reconcile settlement. It should not replace claims judgement or beneficiary verification where material risk remains. Commission payments can be calculated from policy transactions and intermediary agreements, but changes to rates, clawbacks, cancellations, and overrides require version-controlled rules. The principle is straight-through processing for complete, low-risk items and structured human review for exceptions.

Payment security is a central design requirement. Supplier or claimant bank-detail changes are a common fraud pathway; therefore, the same digital identity must not create a beneficiary, approve an invoice, and release payment. Both identities require least-privilege access, credential vaulting, monitored execution, and segregation from human approvers. Duplicate detection should combine exact checks with fuzzy comparison of invoice number, date, amount, bank account, and document image. Payment runs should be reconciled to approved obligations, and rejected or returned payments should automatically reopen the underlying item. These controls align automation with information-security and resilience principles rather than treating speed as the only objective.

5.3 Reinsurance finance automation

Reinsurance processes are often the least standardised part of insurer finance because treaty wording, bordereaux structures, currencies, accounting periods, claims advice, reinstatement calculations, and counterparty practices vary. Nevertheless, the process contains many repeatable elements. Contract terms can be captured in structured fields, including treaty type, share, layers, limits, attachment points, commission, premium basis, reporting frequency, currency, tax, funds withheld, reinstatements, and settlement provisions. A controlled contract repository then becomes the reference for calculations and validations rather than relying on manually interpreted spreadsheets.

For ceded premiums, automation can extract written and earned premium data, apply treaty participation and rates, calculate provisional or adjustable premium, identify minimum and deposit premium conditions, and prepare statements. For ceded claims, workflow can identify claims that meet notification or recovery thresholds, assemble supporting documents, calculate the expected reinsurer share, issue advice, track queries, and reconcile cash received. Bordereaux can be validated for required fields, period, duplicates, currency, totals, and conformity with underlying policy or claim records. Exceptions can be routed to reinsurance accountants or technicians with the relevant contract clause and source data attached.

Reinsurance recoverables deserve particular attention because delayed recognition or collection can distort liquidity and counterparty exposure. An automated register can connect each recoverable to claim movements, treaty terms, advice dates, acknowledgements, disputes, expected settlement dates, cash receipts, and ageing. It can also calculate concentrations by reinsurer, broker, currency, and treaty, while alerts identify approaching contractual time bars or missing evidence. Yet the model must distinguish accounting estimates from billed or agreed recoveries. Human review is still necessary for coverage disputes, commutations, large losses, event definitions, aggregation, and complex reinstatement provisions.

IFRS 17 reinforces the argument for connected reinsurance finance data. Reinsurance contracts held are accounted for separately from underlying insurance contracts, and the standard requires consistent, traceable measurement and disclosure information (IFRS Foundation, 2020, 2023; European Systemic Risk Board, 2021). Research on reinsurance measurement under IFRS 17 points out the need to manage contract boundaries, assumptions, cash flows, and accounting treatment systematically (Zelinová *et al.*, 2022).

Automation should therefore preserve links among contract terms, actuarial calculations, source transactions, accounting entries, reconciliations, and disclosure outputs. It should not post unexplained aggregate journals that cannot be traced to portfolios, groups, periods, or calculation versions.

Market digitalisation initiatives have similarly focused on trusted data and connected accounting and settlement. Lloyd's Blueprint Two described a digital spine linking placement, accounting, payment, claims, renewals, and reporting (Lloyd's, 2020). Although individual market programmes evolve, the underlying lesson continues to be relevant: reinsurance automation depends on common data definitions and interoperable exchange, not only on internal bots. APIs and standard message formats are preferable for stable high-volume connections, while RPA can provide an

interim bridge where counterparties or legacy platforms lack integration capability.

5.4 Technology selection and orchestration

Table 1 compares major automation components. No single technology is sufficient. RPA is effective for deterministic cross-system work; APIs deliver more robust system-to-system exchange; document intelligence structures incoming evidence; machine learning supports classification and prediction; workflow manages ownership and approvals; process mining reveals actual performance; and rules engines execute transparent policy. Insurers should select the least complex technology that reliably satisfies the requirement. A rules engine is preferable to an opaque model when the decision can be expressed clearly. An API is preferable to a screen bot when a supported interface exists. Human judgement is preferable when the financial consequence is material and evidence remain ambiguous.

Table 1: Technology-process fit for an insurance finance automation portfolio

Component	Best-fit work	Insurance examples	Primary control	Expected outcome
RPA	Stable, rule-based user actions	Legacy posting; statement download; status updates	Bot identity, access, change monitoring	Faster repetitive execution
APIs	System-to-system exchange	Bank feeds; policy, claims, broker, and ledger integration	Authentication, schema validation, idempotency	Robust straight-through flow
Document intelligence	Variable semi-structured documents	Invoices, remittances, bordereaux, claim evidence	Confidence threshold and source retention	Reduced manual capture
Rules and workflow	Transparent decisions and approvals	Matching tolerances, authority limits, escalation	Version control and segregation of duties	Consistent processing
Machine learning	Pattern-based classification or prediction	Match suggestion, delay risk, anomaly detection	Model validation, drift, explainability	Better prioritisation
Process mining	Event-log analysis	Rework, waiting time, control bypasses	Complete logs and interpreted context	Evidence-based redesign

An orchestration layer should manage work across these components. Each transaction receives a unique identifier, status, owner, timestamps, evidence links, and control results. Straight-through items progress automatically; exceptions enter queues based on type, materiality, and required expertise. Service-level timers trigger reminders and escalation. The ledger posting is linked to the approved workflow instance, and cash settlement is linked back to the obligation. This design enables end-to-end auditability and enables real-time operational dashboards without creating parallel spreadsheets.

5.5 Governance, control, and resilience

Automation changes the control environment because execution becomes faster, more consistent, and potentially more concentrated. A faulty rule or compromised bot can affect thousands of transactions before a person notices. Governance must therefore cover process ownership, technology ownership, model ownership, data ownership, and control ownership. Every automation should have an approved purpose, documented inputs and outputs, risk classification, test evidence, access profile, exception logic, monitoring thresholds, fallback procedure, and retirement plan. Changes to rules or models must follow version control and independent approval proportionate to risk.

Human monitoring should be designed rather than added informally. Review is most valuable when focused on uncertain, material, unusual, or high-risk cases. Excessive manual checking eliminates efficiency, while deficient review creates blind trust. Confidence thresholds, monetary limits, counterparty risk, new bank details, sanctions indicators, unusual contract terms, and model drift can determine when intervention is required. Supervisory guidance on insurance AI emphasises accountability and proportionality, supporting a tiered approach in which low-risk classification tools face lighter controls than models influencing material financial or customer outcomes (IAIS, 2023, 2025).

Operational durability is equally important. DORA establishes an extensive approach to information and communication technology risk, incident management, testing, third-party oversight, and continuation for financial entities (European Parliament and Council, 2022; Financial Stability Board, 2020). An insurer should therefore map which automated processes are critical, identify dependencies on cloud, OCR, banking, workflow, and RPA providers, and test failure scenarios. Queues must be recoverable, transactions must be

idempotent where possible, and reruns must not create duplicate postings or payments. Manual fallback procedures should be realistic and periodically exercised. Cybersecurity standards require controlled access, logging, vulnerability management, backup, and incident response across the automation environment (ISO/IEC, 2022).

5.6 Performance measurement and maturity

Automation success cannot be assessed only through hours saved. Table 2 presents a balanced framework covering speed, accuracy, liquidity, productivity, control, resilience, and stakeholder outcomes. Receivables measures should include automatic match rate, unapplied cash, days sales outstanding where meaningful, overdue value, dispute resolution time, and forecast accuracy. Payables measures should include touchless processing, cost per invoice, approval time, duplicate prevention, on-time payment, exception rate, and payment failure. Reinsurance measures should include bordereaux acceptance, calculation exceptions, recoverable ageing, cash conversion, reconciliation breaks, time-bar alerts, and counterparty query time.

Table 2: Balanced performance framework for insurance finance automation

Dimension	Representative metric	Definition	Management interpretation
Speed	End-to-end cycle time	Elapsed time from valid obligation to closure	Shows waiting and hand-off delay
Automation	Straight-through rate	Share completed without manual touch	Indicates process and data readiness
Accuracy	First-pass yield	Share completed without correction or rework	Tests automation quality
Liquidity	Overdue or recoverable ageing	Value and days beyond agreed settlement	Connects operations to cash exposure
Control	Exception and override rate	Cases failing rules or requiring override	Reveals risk and rule weaknesses
Resilience	Recovery time and failed-run recurrence	Time to restore service and repeat incidents	Tests continuity and root-cause closure
Stakeholder	Query resolution and on-time settlement	Timeliness experienced by brokers, suppliers, claimants, reinsurers	Balances internal efficiency with service

Maturity develops in stages, as illustrated in Figure 2. The stabilise stage standardises procedures, ownership, master data, and controls. The connect stage creates reliable interfaces, document repositories, and transaction identifiers. The automate stage deploys rules, workflow, RPA, and straight-through processing for suitable tasks. The

optimise stage uses process mining, predictive analytics, continuous controls, and adaptive capacity planning. Attempting to begin with advanced artificial intelligence before stabilising data and controls usually increases exceptions and weakens trust. The staged pathway therefore links ambition to organisational readiness.

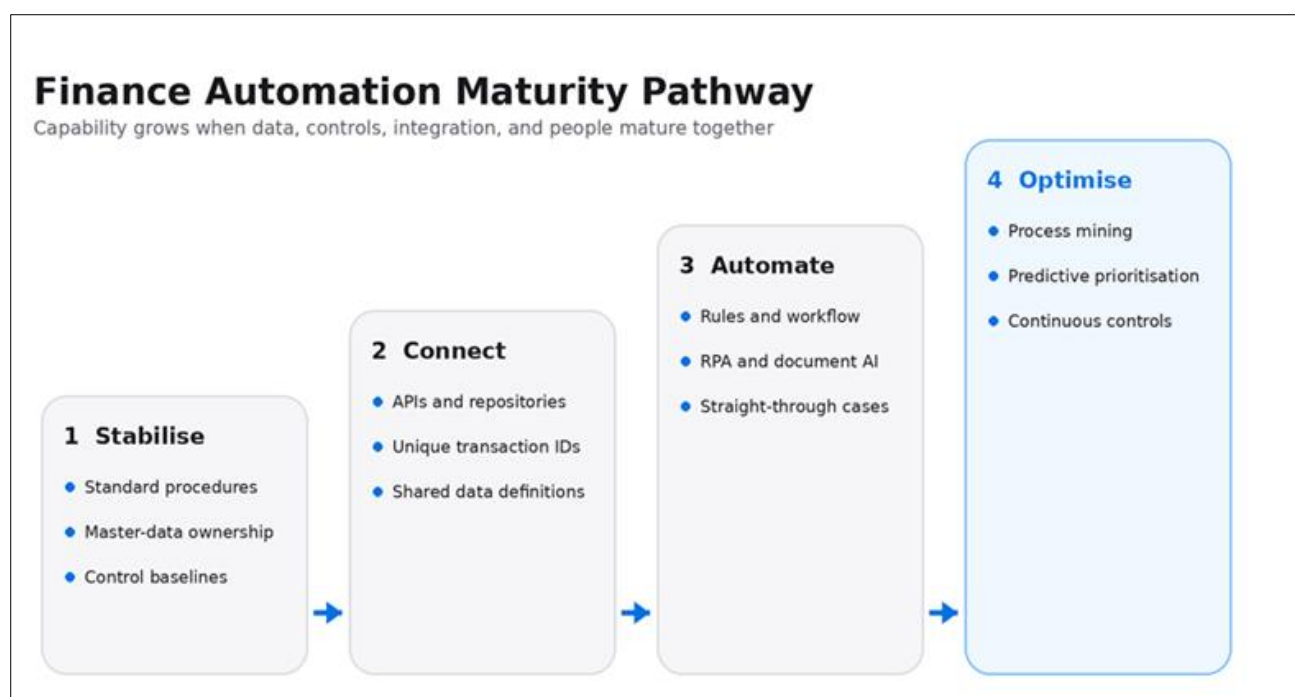


Figure 2: Staged maturity pathway from process stabilisation towards continuous optimisation

The literature consistently indicates that implementation capability determines whether automation scales. RPA projects require joint business and technology participation, appropriate process selection, training, governance, and continuous maintenance (Santos et al., 2020; Januszewski et al., 2021; Herm et al., 2023). A centre of excellence can provide standards and reusable components, but finance and reinsurance specialists must remain accountable for business meaning. Sustainable automation is a product-management discipline rather than a one-time software installation.

6. DISCUSSION

The review shows that the strongest business case arises when insurers treat receivables, payables, and reinsurance finance as a connected cash-control system. Isolated automation can reduce task time, but integration creates larger benefits by removing reconciliation points and enabling consistent data lineage. For example, an approved claim can trigger a payment, create the corresponding reinsurance recovery, update cash forecasting, post controlled entries, and initiate settlement monitoring. The value comes not from replacing every person, but from making sure that the same validated transaction drives all downstream actions.

The findings also clarify the boundary between rule-based and cognitive automation. Deterministic rules are appropriate for contractual calculations, tolerances, approvals, and postings where logic must be reproducible. Machine learning

is most useful for classification, matching, prioritisation, anomaly detection, and prediction where patterns are complex but outcomes can be monitored. Generative AI may assist with summarising correspondence or extracting clauses, yet it should not independently create accounting conclusions, change beneficiary details, or interpret disputed reinsurance coverage. NIST (2023), ISO/IEC (2023), and the European Union AI Act (European Parliament and Council, 2024) emphasise lifecycle governance, risk assessment, documentation, monitoring, and accountability for AI systems, all of which are directly relevant to finance automation.

A further implication concerns operating-model design. Automation shifts work from transaction entry to exception resolution, control analysis, data stewardship, and continuous improvement. Employees need process, accounting, data, and technology literacy. Roles should be redesigned before headcount assumptions are made, because poorly planned reductions can remove the expertise required to investigate exceptions and maintain controls. The evidence on RPA adoption repeatedly identifies change management and skills as success factors, demonstrating that technology investment without workforce design is unlikely to deliver durable value (Gotthardt et al., 2020; Plattfaut et al., 2022).

Finally, insurance finance automation should be evaluated as a governance capability. Faster settlement, more accurate ageing, and lower processing cost matter, but so do auditability, resilience, counterparty transparency, and

policyholder or supplier outcomes. A system that pays quickly but cannot explain its decisions is not mature. A system that is accurate in normal conditions but fails during month end or a catastrophe event is not resilient. The proposed framework therefore preserves efficiency with controlled adaptability.

7. Managerial and Research Implications

For managers, the practical starting point is a process-and-data diagnostic rather than a technology procurement. Insurers should map obligations, evidence, decisions, postings, cash movements, reconciliations, exceptions, and controls across the three domains. Candidate use cases can then be scored by volume, stability, data readiness, financial value, control risk, and integration feasibility. Early releases should target visible pain points with reliable rules, such as cash matching, invoice capture, duplicate checks, bordereaux validation, or recovery ageing. Benefits and control performance should be measured from a documented baseline.

For researchers, important gaps remain. Published evidence is concentrated on general RPA and accounts payable, while comparative studies of insurer receivables and reinsurance finance are scarce. Subsequent studies should report process-level outcomes before and after implementation, distinguish task automation from end-to-end redesign, and examine how IFRS 17 data architectures affect finance productivity. Research is also needed on personnel oversight thresholds, model-risk controls for financial matching, automation performance during catastrophe surges, and cross-organisational data standards for reinsurance settlement.

8. Limitations and Future Directions

This review is limited by mixed terminology and uneven empirical coverage. Many studies discuss automation broadly, while insurers rarely publish detailed internal performance or control data. Reinsurance evidence is especially dependent on accounting standards and market-design material rather than controlled comparative studies. The framework should therefore be validated through multi-insurer case research and longitudinal measurement. Future reviews can go beyond 2025 to assess generative and agentic automation, but evaluation should be grounded in bounded authority, independent approval, traceable evidence, and recoverability.

8.1 Implementation Assurance

Implementation sequencing should also reflect the insurer's annual cycle. Renewal peaks, catastrophe seasons, treaty closing dates, audit

periods, and regulatory submissions create predictable capacity constraints. A release calendar that avoids these peaks decreases operational risk and gives users time to learn new exception routines. Parallel running should compare automated and existing outputs at transaction level, with differences classified by cause rather than merely corrected. This produces evidence about data defects, rule gaps, and control design. Once stability is demonstrated, the old route can be retired through formal approval, archived documentation, and contingency testing. Benefits should be reviewed after deployment because volume, counterparties, products, and regulations change. An automation that was suitable at launch may later require redesign, integration, or decommissioning. Continuous review protects the finance function from accumulating fragile bots and unowned workarounds. Control owners should review exception trends monthly and use recurring causes to improve upstream policy, claims, procurement, broker, and treaty data. Finance leadership should publish a transparent automation inventory showing purpose, owner, criticality, dependencies, access rights, monitoring, and last validation date. Internal.

9. CONCLUSION

Automation can materially improve insurance receivables, payables, and reinsurance finance when it is implemented as an integrated, controlled operating model. RPA, APIs, document intelligence, machine learning, workflow, process mining, and rules each address different process conditions. Receivables benefit from automated cash application, ageing, prioritisation, and dispute routing. Payables benefit from intelligent invoice processing, controlled approvals, duplicate detection, and secure settlement. Reinsurance finance benefits from structured contract data, bordereaux validation, calculation support, recovery tracking, and IFRS 17 lineage. The decisive factors are process stability, master-data quality, segregation of duties, human review, model governance, and business continuity. Insurers should therefore stabilise and connect processes before pursuing advanced automation, measure outcomes across liquidity and control as well as cost, and manage automation as a continuously governed finance capability.

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