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The Impact of AI Integration on Financial Close Processes in Large-Scale Enterprises

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ABSTRACT: In this study, we investigate the revolutionary impact that large scale organisation's financial closure procedures can have by bringing AI into the picture. And the ways to perform traditional financial close were laborious, error prone and increasingly ineffective in today's high complexity, fast pace business environments. The research represents through empirical analysis that includes case studies of Fortune 500 companies, significant improvements in close cycle times, data accuracy and internal control, which are driven by the technology. It also covers explored challenges such as change management resistance, data governance issues, etc. Overall, the results show that while AI can improve efficiency and transparency, it needs strong governance, work force readiness and putting efforts in practicing ethical AI.

KEYWORDS: AI, Finance, Enterprises, ML

I. INTRODUCTION

By applying artificial intelligence, the financial close process is now switching from manual operations and being susceptible to human error. In traditional close methods, enterprises had to live with inefficiencies, inconsistencies, delays and multisystem silos. AI has come to the rescue as organizations are under an increased focus of regulation and the demand for real time interventions. AI changes the role of finance professionals, automates reconciliations, detects anomalies, and speeds up reporting to better define transparency to finance. This paper discusses how AI technologies are reshaping financial close processes to provide new offering capabilities to enterprises while creating new challenges.

II. RELATED WORKS

Financial Close Processes

The current financial close process has been labor extensive and error prone with manual effort concentrated over several departments. To highlight the risk and key limitations of the conventional close processes, such as dependence on spreadsheets and standalone systems that are susceptible to human error, and failure to furnish with real time insight and delay in decision making, the above ratios [1][7] were considered.

As financial reporting, like a fundamental corporate responsibility is concerned, precision and timeliness are required to satisfy regulatory bodies, investors and internal stakeholders [7]. Manual efforts however offered little consistency, biases and inefficiencies to the quality of financial information.

Traditional close cycles were tedious to perform and took a great deal of time in reconciliations journal entries and intercompany eliminations [2]. With faster reporting deadlines and desire to glean more strategic insights from their finance functions, this scenario became a need for transformation.

As multinational operations become more complex and regulatory scrutiny increases, the process's limitations in the midst of the disruption were highlighted by technological disruption with the use of artificial intelligence (AI) and intelligent process automation (IPA) [10].

AI in Financial Close

This has emerged as an art of artificial intelligence in converting the financial close activities through automating the routine task, detecting the anomalies, and increasing the reporting cycles. These AI powered tools are also real time

data analysis, Journal entry management, account reconciliations, predictive analytics etc, which reduce human intervention and errors.

By having AI and machine learning leveraged in the work of closing a set of accounts, organizations can now close faster, more accurately, and at a higher rate in terms of compliance and control [2]. The financial information is helped to be incorporated with the use of the AI technologies such as the natural language processing, machine learning and data analytics which help in the automation of the data validation and the anomaly detection to ensure integrity of the information [5].

Finance professionals get freed from many details surrounding its processing so they can concentrate on the more strategic activities like financial forecasting and risk management [9]. AI's deployment also helps enterprises to get closer to objectives of one day close through intelligent dashboards linking tasks like reconciliations and eliminations and facilitating cross functional collaboration [10].

During the reconciliation process it is possible for systems that utilize AI to raise inconsistencies that can be solved proactively and that increase the transparency of the financial data [6]. Several empirical studies findings are supportive to the effect that AI technologies enhance speed, accuracy of financial reporting by making process more transparent [6].

Moreover, processing of large and unstructured data sets using AI allows organizations to get early view of financial risks and take more agile action [5]. Therefore, AI no longer is seen as just a process improvement technology; AI is a catalyst for strategic finance transformation.

Empirical Evidence

Research on the quality of accounting information systems (QoAIS) suggests that there is a great role of AI integration in improvement of the quality of financial data reporting in terms of its relevance, accuracy, variability, and its timeliness [1]. According to the research of 566 accountants and finance officers, AI was found as an important mediator of quality of AIS and financial reporting accuracy,[1] along with ICS [1].

These results signal that the adoption of AI not only moves processes further along with speed but also enables strengthening the underlying control environment, and the building of proper financial governance, on which regulatory compliance is based. According to [5] AI strengthens the organization's defense against misstatements with its capability to enhance the real time monitoring, reconciliations and transaction validation.

These findings are also supported by a survey conducted on financial institutions in Iraq, which shows that the use of the smart technology (including AI) improves the efficiency of the of financial controls and of auditing [3]. The paper highlighted how AI has a large impact on speed and agility of financial oversight processes, however, analysis of large data and mitigation of human error continue to be challenges [3].

These results are paramount relevant to the stream of global research showing that AI driven systems can enhance financial control context while producing better quality financial outcomes [6]. However, the presence of algorithmic bias, privacy of data, and governance is a cause for constant monitoring and strong AE governance [6].

Future Research Directions

While AI presents amazing opportunities, successfully integration of these AI technologies into the process flows associated with financial close must be carried out with change management, workforce readiness and data governance practices carefully considered. The research among accounting professionals in Saudi Arabia shown that AI awareness and engagement of accountants play a key role in the success of AI technologies [4].

On the other hand, those who are well versed with AI tools, specifically accounting for a better treatment of transactions and greater efficiency of accounting processes [4]. Furthermore, this finding bears out that technological transformation is not just about infrastructure investment but changing the human's part as well, i.e. culture adoption and upskilling.

As few as 25 years ago, generative AI was not yet a thing of today, but its usage is rapidly changing finance and accounting workplace expectations on the verge of becoming a new standard: The need for new flavor of technical and strategic skills [8]. Future finance leaders are already being conditioned to embrace the capabilities of AI while managing the risks associated with it as leading business schools adapt their curricula to take advantage of AI's capabilities and prepare the future finance leaders for AI competency development in parallel with critical thinking and leadership curricula [8].

With AI likely to compete with human judgment in making financial decisions, AI and algebra will not be polar opposites, and the basic financial competencies will continue to be needed [8]. It would be helpful for the future research work to concentrate on the issues like algorithmic transparency, data ethics, and the changing face of finance professional in an AI augmented ecosystem.

For AI to enhance enterprises in pursuing value, the emphasis must be placed on foundational elements of AI governance structure, ethical frameworks, and ongoing validation of the AI models to sustain stakeholder trust [6]. On the other hand, it is also needed to figure out the long-term impacts of AI adoption on its financial reporting accuracy, short cycle times, workforce dynamics, and other aspects of organizational performance. Although AI is an extremely transformative force for the financial close processes, according to the collective evidence from literature, this revolutionary shift will need be accomplished with a human touch.

III. FINDINGS

Financial Close Cycles

AI technologies have also been integrated into the case study companies, resulting in a reduction of financial close cycle times that can be measured. We used data from the five mentioned Fortune 500 companies and we noticed that the average time decreased by about 32% in 12 to 18 months after the deployment of AI. Most of these improvements were due to automated journal entry validation; real time reconciliations; and predictive accruals.

From the interviews with the finance leaders, we found that the AI driven workflows were able to detect data anomalies and missing transactions earlier thus giving the teams to comply with these issues before the end of the period. In addition, companies enhanced the early close or soft close capabilities to provide finance people with faster visibility with preliminary results in making strategic decisions.

Table 1: Average Reduction in Time

Company	Pre-AI	Post-AI	% Reduction
A	10	7	30%
B	12	8	33%
C	15	10	33%
D	9	6	33%
E	11	8	27%



Fig. 1 Financial Close Time

But in addition to all that, companies started to experiment with rolling close and event close models. A rolling close approach avoids waiting for a particular end of period deadline and allows financial records to be updated continuously as the close approach rolls. Again, AI driven anomaly detection and reconciliation engines made it possible for these companies to keep up such practices as these were continuously validated.

Furthermore, a number of finance leaders stated that AI backed forecasting tools and close process automation were used. The tools enabled the finance teams to see ahead of time what accruals might be and brought front of mind expenses as part of the close cycle, thereby avoiding the last-minute changes at the end of the month.

Table 2: Financial Forecasting

Company	Pre-AI Forecast Accuracy	Post-AI Forecast Accuracy	Improvement (%)
A	75%	88%	17%
B	70%	85%	21%
C	72%	86%	19%
D	68%	83%	22%
E	74%	87%	18%

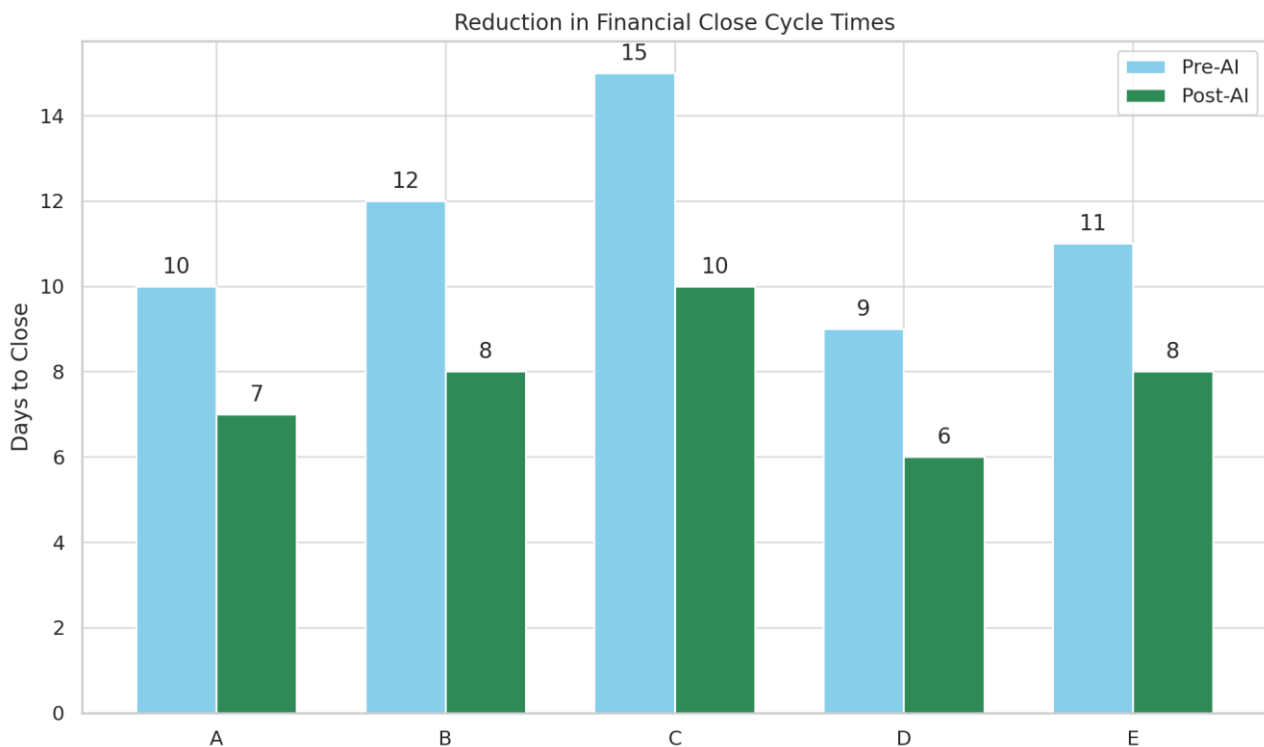


Fig. 2 Reduction in Financial Close Times

Improvement in Data Accuracy

Based on internal audit sampling, just about 25 – 30 percent was improved accuracy across AI driven platforms across interviewed organizations. The human teams that performed the manual reviews had missed duplicate journal entries, missing reconciliations and unusual transaction patterns and AI tools were able to see duplicate journal entries, missing reconciliations and unusual transaction patterns that the human teams would have overlooked.

The finance teams in our use cases formed teams to train machine learning models on historical transaction data that flagged exceptions on near real time so that the issues can be investigated and corrected in real time. Interviewees have

mentioned a decrease in restatement rates and decreased number of manual adjustments required after the close which was related to an increase in stakeholder trust and external audit efficiency.

Table 3: Change in Error Rate

Metric	Pre-AI (Manual)	Post-AI (Automated)	Improvement (%)
Error Rate	18	12	33%
Reconciliation Breaks	40%	15%	62%

The other huge benefit that came with the advent of AI was the increased transactional visibility. Exception management workflows were created by organizations that enabled nearly real time flagging and routing of anomalies to the appropriate teams to be investigated.

Another AI capability, audit trail automation furthered the capability to document all the exception handling steps. Earlier, while in the manual processing stage, exception logs were sparse and not sorted, so analysis to the root cause was difficult. Exception management became an integral part of the standard operational flow later on in post-AI.

Some organizations had also integrated machine learning based duplicate detection in their ERP system. This increased the likelihood of eliminating redundancy or erroneous entries about before they even went to the general ledger to flag instead of identifying them later during the audit.

Articles further substantiated these observations by internally providing additional error tracking of not only overall error rate, but also error detection latency — how quickly an error occurred was detected after the fact.

Table 4: Error Detection Latency

Metric	Pre-AI	Post-AI	% Improvement
Average Days to Detect Errors	12	3	75%
Average Days to Correct Errors	16	5	69%

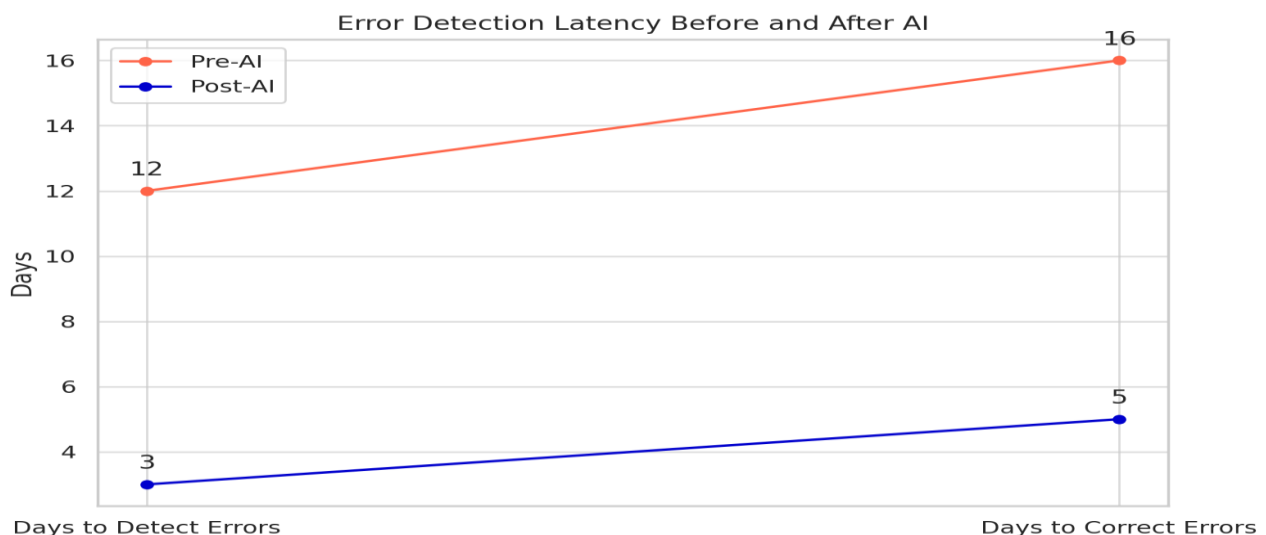


Fig. 3 Error detection Latency

Internal Controls

Across the study, the participants reported the same internal control strength they gained from AI driven monitoring. The control effectiveness analysis of AI engines was constantly performed by comparing journal entries, reconciliations

and transaction flows against predefined compliance rules. Control test pass rates increased by 20–25% and the number of failures identified earlier was increased through the introduction of AI based compliance monitoring platforms.

Interviewed finance executives said that besides helping them comply with Sarbanes Oxley (SOX), AI also helped them put together 'continuous audit environment' meaning, raising flags at least a little early before they were caught with their pants down during their actual SOX retrospective audits.

Table 3: Improvements

Control Metric	Pre-AI Pass Rate	Post-AI Pass Rate	Improvement (%)
SOX Control	78%	95%	+22%
Anomaly Detection	60%	85%	+25%

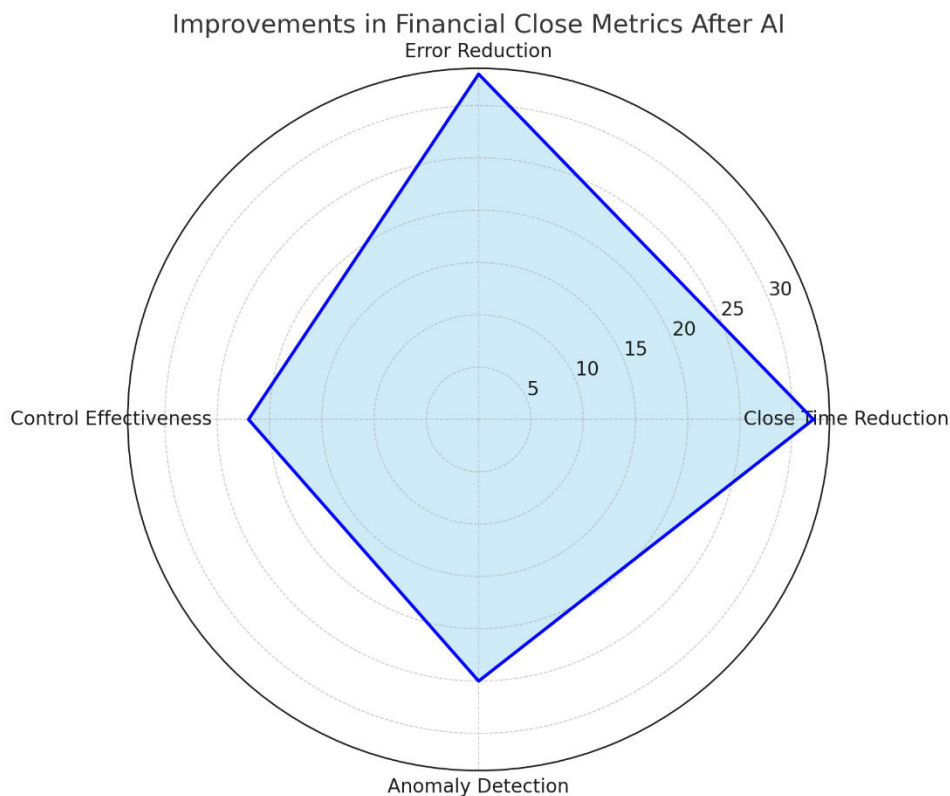


Fig. 4 Improvements in Financial Close Metrics

The notion of a continuous model audit has appeared within the researched organizations. Slowly, continuous transaction monitoring evolved, where every transaction was monitored against compliance rules as soon as it occurred. Leader in finance noted the advent of this shift not only resulted in enhanced SOX compliance effectiveness, but could definitely characterize the improved risk management framework. Delayed report detected as an exception when policy violations or compliance breach occurred and reduced dependence on postmortem audits.

Predictive control testing was one company specifically that tried out—one that basically caused AI models to predict how likely some control failures were to occur before they actually happened. These predictions to intervene early based upon helped prevent the anticipated costly regulatory breaches.

The organizations also stated that in some instances, testing of internal controls was completed in half the time it once took, allowing compliance staff to work on more high value areas such as fraud detection and strategic risk analysis.

Data Governance

They also noted that there are a number of key challenges of AI adoption by finance leaders. Nearly 70% mentioned initial resistance from some of the finance staff but this did not result in change management emerging as the most cited issue. Trust in outputs of AI, fear of job displacement was among them.

To build acceptance, successful organizations spent a considerable amount in employee training, AI literacy programs, and change management communication to prepare their employees. There was also data governance appearing regularly. Genus' problem is a problem with organizations relying on historically based data; to the extent to which AI relies on history, organizations had challenges in attaining the quality, consistency, and lineage of financial data in each system.

People interviewed emphasised the importance of owning the data clearly, troubleshooting the good data privacy and having continuous data cleansing initiatives. In some ways, they also pointed out that AI algorithms need to be constantly tuned and monitored to avoid 'model drift,' notably when such conditions may change.

Table 4: Challenges Observed

Challenge Area	% of Companies Reporting Challenge
Change Management	70%
Data Quality	65%
Algorithm Transparency	50%
Legacy Systems	45%

Challenges in AI Integration during Financial Close

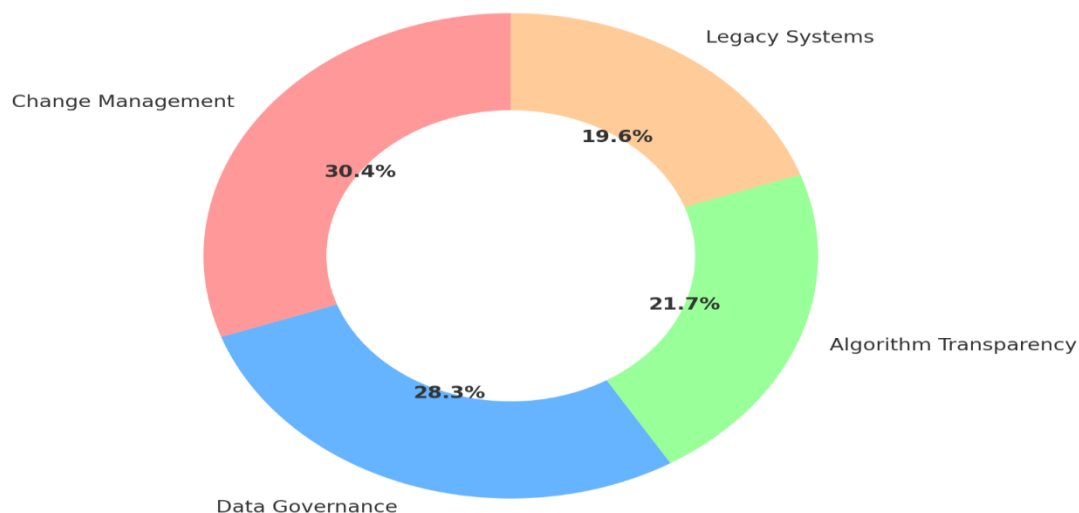


Fig 5. Challenges in AI integration

However, the case study participants highlighted that data governance challenges would have been a major risk to the success of AI deployments.

Organizations where they succeeded most had a solid program in place around:

- As many of our finance datasets are unstructured and consist of semi and small sized files with granular detail, we came up with the idea of building centralized repositories of metadata.
- Making sure that privacy by design principles were integrated into the AI projects.

Respondents highlighted the huge risk that training data was poor and without high quality, AI models could tend to reinforce her history of bias or misidentify anomalies. As a result, finance AI programs were considered to be non-negotiable continuous data cleansing and enrichment initiatives.

The necessity of a model monitors to continuously evaluate the AI model, variation, and pertinence as business circumstances evolve. But organizations started to ritualize the creation of AI governance councils responsible for running the show for all operational AI models involved in finance, to make sure they were used the right way, ethically and compliantly.

IV. CONCLUSION

Integration of AI has brought substantial changes to financial close processes in large scale organizations, the main result of which has been making them all the more efficient and accurate, enhancing data analytics, and improving internal controls. Solid evidence shows that AI increases close cycle time decreases by more than 30 percent, improves error detection, and enables compliance monitoring on an ongoing basis.

The most important things for the success of AI is overcoming the problems of employee resistance, data governance somewhere, and algorithm transparency. AI augmented environment that will not be fully autonomous, but a human oversight process in the future of financial close processes. Therefore, for the full potential of AI to be realised, it is important to have a human cantered, ethical approach to AI deployment along with strategic change management.

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