

Control automation

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Version:1.0.0

Approval: Pending

February 2026

1 Summary

Control automation is a project to automate control performance. The automation will cover all processes associated with control performance. This includes frequent data extraction, logic implementation, and exception recording. Beyond control performance, an automation management console will be created to interact with various automation parts.

2 Introduction

Control performance is a crucial BAU (Business As Usual) activity aimed at mitigating risks associated with business processes that could result in financial loss. A control is a mechanism used to mitigate financial risk in a business through manual, semi-automated, or automated procedures. These procedures are performed using various tools tailored for risk mitigation. Control performance is the process of observing, recording and analysing control outcomes. Governance provides guidance on how control performance is done based on audit requirements and senior management expectations.

3 Problem statement

The current control performance method requires human resources to perform. In most cases, an analyst is required to observe, record and analyse the control output. Additionally, some control outcomes can require secondary analysis, whereby further analysis is done. There are three phases that make-up control performance: observe, record and analyse control outcome. The observe and record phase are repetitive, manually intensive and rarely change. While analysis will differ depending on the recorded outcome.

Control performance dependency on human resources results in a cost in operational expenditure. The OpEx can be reduced using automation for observing and recording control outcomes and using an A.I agent to analyse an outcome.

4 Objectives

The project objectives are targets that must be reached for the project to be considered a success. These objectives are set to reduce the cost associated with control performance and enabling better re-allocation of resources for more critical activities. The objectives are as follows:

- To create a platform that extracts data from a database using a predefined logic (control logic)
- To create a platform that records the information in a control outcome database.

- To create a platform that analysis the data that was recorded in a control outcome database saves it in the control outcome database.

5 Requirements

5.1 Functional requirements

- Control outcome monitoring and recording requirement
 - Extract data from a database using a predefined logic written in SQL
 - Calculate aggregations such as record count, total transaction value, record count per category (where applicable) and dispersion. Store the results in a database.
 - Create visuals based on the output and take a snapshot, save it in the database.
- Control outcome analysis requirement
 - Provide broader analysis (overall) of the recorded control outcome using AI agents.
 - A user should to interact with the AI agent.
 - Log in page

5.2 Non-Function requirement

- Database and data engineering tools
 - Superbase to store raw data
 - Azure data factory to trigger jobs
 - Databricks to create externally managed tables for control performance.
- A.I agent activities
 - Review record control outcomes
 - Provide users with response within 2 mins.
 - Admitt when info is not available.

5.3 Technical requirement

- A.I agent framework (**To be confirmed**)
- API dev framework
 - Fast API and documentation OpenAPI (Swagger)

- Frontend
 - React
- Environment packaging
 - docker
- Deployment platform, code repo and CI/CD
 - Azure
 - Github
 - Github actions (switch to Azure Dev Ops later)

6 Design

7 Methodology

8 Discussion

9 Conclusion

10 Appendix

10.1 Code