

**Application Change Management
Audit Report
Report Nr. 15/15
September 10, 2015**

Distribution:

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Table of Contents

Introduction	3
Audit Objectives & Scope.....	3
Internal Audit Opinion.....	3
Audit Findings & Action Plans.....	4
Conclusion.....	6

Introduction

As per our FY2015 Audit Plan, EDC Internal Audit performed an audit of the Application Change Management (ACM) process. The underlying goal of this process is to mitigate the risk of unauthorized, untested changes to EDC's business application systems. Referred to as the Promotion to Production Model, the ACM process was updated in 2010 to have standardized processes and controls for making changes to core business applications. The Treasury application is used to support treasury operations, accounting and market risk functions. The change management process for the treasury application does not follow all aspects of the standard Promotion to Production Model.

Audit Objectives & Scope

The overall objective of the audit was to review the controls surrounding the ACM process. This included an evaluation of the quality and effectiveness of the policies and procedures framework governing change management activities. The audit also examined controls pertaining to the authorization and testing of changes, approvals, segregation of environments and rollback and backout planning.

The scope of this audit was to review the design and operating effectiveness of controls related to ACM. The IT Solution Delivery Value Stream (ITSDVS), which is responsible for new systems projects, was implemented in September 2014. Since inception only 12 projects have been completed from start to finish, amounting to roughly \$1.5M. As a result, ITSDVS was excluded from the scope of the audit. The testing period for our audit was January 2014 - July 2015 and covered all core business applications at EDC.

Internal Audit Opinion

In our opinion, “*Opportunities Exist to Improve Controls*”¹ surrounding the ACM process. The IT Operations Management (ITOM) group exists as a control function to safeguard the production environment of EDC's business applications. This includes ensuring changes made to these applications have been appropriately tested and approved by business users prior to ITOM approving the change for migration to the production environment. We found instances where system changes were approved for migration without evidence of all required artifacts. Examples include a lack of support for test results as well as insufficient deployment plans. We also noted the Change Management Standard which governs the process requires revisions to provide well defined guidance on key components such as impact assessments, testing requirements, and detailed deployment plans.

¹ Our standard audit opinions are as follows:

- **Strong Controls:** Key controls are effectively designed and operating as intended. Best in class internal controls exist. Objectives of the audited process are most likely to be achieved.
- **Well Controlled:** Key controls are effectively designed and operating as intended. Objectives of the audited process are likely to be achieved.
- **Opportunities Exist to Improve Controls:** One or more key controls do not exist, are not designed properly or are not operating as intended. Objectives of the process may not be achieved. The financial and/or reputation impact to the audited process is more than inconsequential. Timely action is required.
- **Not Controlled:** Multiple key controls do not exist, are not designed properly or are not operating as intended. Objectives of the process are unlikely to be achieved. The financial and/or reputation impact to the audited process is material. Action must follow immediately.

Audit Findings & Action Plans

1. Change Management Process

An effective change management process relies on the successful completion of key steps such as logging, testing, deployment planning, approval and a post-implementation review. ITOM exists as a control function to safeguard the production environment of EDC's business applications. We found some instances where system changes were approved for migration by ITOM without clear evidence to support the decision to migrate. Examples from our test samples included a case where testing results were not present, as well as insufficient deployment plans. Additionally, the Change Management Standard, the main guidance document for this process, does not contain clear criteria outlining requirements for different components in the promotion to production model. For example, no reference is made to when technical testing and user acceptance testing is required and what documentation must be retained to support completion of testing.

Management has agreed to ensure that change tickets are supported with all required artifacts prior to approving the migration to production. In addition, the guidance in the Change Management Standard will be updated to include specific guidance around: testing standards and the requirements for documenting evidence of test plans and results; evidence of user acceptance testing; and detailed deployment plans.

Rating of Audit Finding - Major²

Action Owner – Director, Productivity Enablement

Due Date – Q2 2016

2. Change Management Standard

Change requests are assessed for impact into three categories: Substantial, Major and Minor. We reviewed the Change Management Standard which governs the change management process and noted that it does not include a definition of Substantial, Major, or Minor changes, or the criteria for classifying a change into one of these three categories. We also noted that common change management standards apply regardless of the category of change. Adjusting standards to the category of the change could create efficiencies and more capacity. Management has agreed to revise the Change Management Standard to include formal definitions and guidance for methodology of the risk assessment as well as the change management process for each respective risk (Substantial, Major, or Minor.)

² The ratings of our audit findings are as follows:

- **Major:** a key control does not exist, is poorly designed or is not operating as intended and the financial and/or reputation risk is more than inconsequential. The process objective to which the control relates is unlikely to be achieved. Corrective action is needed to ensure controls are cost effective and/or process objectives are achieved.
- **Moderate:** a key control does not exist, is poorly designed or is not operating as intended and the financial and/or reputation risk to the process is more than inconsequential. However, a compensating control exists. Corrective action is needed to avoid sole reliance on compensating controls and/or ensure controls are cost-effective.
- **Minor:** a weakness in the design and/or operation of a non-key process control. Ability to achieve process objectives is unlikely to be impacted. Corrective action is suggested to ensure controls are cost-effective.

Rating of Audit Finding – Moderate
Action Owner – Director, Productivity Enablement
Due Date – Q2 2016

3. Treasury Application Change Management

The application used to support treasury operations, accounting, and market risk functions, is maintained separately by the Treasury Centre of Expertise due to an identified 100% availability requirement. During our testing of one build, we were informed that three of the four change tickets associated with the build were inadvertently approved for promotion to migration, without completion of testing requirements. As part of our audit procedures, we verified that these changes did not have any significant impact on the production environment. Management subsequently reviewed all changes processed since December 2014 (when the current change management process was put in place), to ensure testing was completed for all change tickets. We reviewed the results of this management review, which confirmed that there were no significant operational issues resulting from past changes. However, from a process design perspective, changes being migrated into production without adequate testing and approval could severely affect operations in the production environment. Management has agreed to implement a peer review control as a part of the manual release sheet creation process prior to obtaining formal migration approval.

Rating of Audit Finding - Moderate
Action Owner –Vice-President & Treasurer
Due Date – Q4 2015

4. Technology Asset Approval Matrix

The Technology Asset Approval Matrix (TAAM) defines the appropriate business approval authorities for each EDC application for change and access management. TAAM authorities should be individuals in an oversight position in order to maintain separation of duties between day-to-day transacting and governance of the overall process. During our testing we found examples of persons with day-to-day operational responsibility approving changes. We also noted ITOM approved changes for migration into production based on approvals from individuals not listed in the TAAM. Finally, there were authorities listed on the TAAM who were no longer EDC employees and/or have moved to different roles in the organization. Management has agreed to develop and implement an annual update process for the TAAM to ensure the most current and appropriate approval authorities are defined.

Rating of Audit Finding - Moderate
Action Owner –Vice-President, Business Intelligence and Innovation
Due Date – Q4 2015

Conclusion

The audit findings have been communicated to and agreed by management, who has developed action plans that are scheduled for implementation no later than Q2 2016.

We would like to thank management for their support throughout the audit.