Standards and Guiding Principles : In-progress

DRAFT – work in progress

Solution Office Business Routines and Processes, Engineering Standards, Key Guidelines and References

Current Standards:

Technical Standards

Business Standards

Topic	Point of Contact	Status Date
Business Processes	*Multiple point of contacts*	
Data Management	Frank DiBiase, Sravani Konda, Jay Desai	
Data Virtualization	Terrance Tulloch, Stephen Griffin, John Anderson, Sravani Konda, Don Onnis	
Project Management Methodologies	TBD	
RPA	John Anderson	
Security Guidelines	TBD	
Service accounts	TBD	
SO Business Routines	Heidi Wilson	
Software Development	Frank DiBiase, Sandeep Kanaparthi, Ramachandrareddy Kuchakulla	
Salesforce	Heidi Wilson, Punnet Mehta	
Work Intake	Daniel Johns, Vishnu Kanadam	

Solution Office Standards Catalog

Business Processes

SO Business Processes and their guidelines

Topic	Guidelines
Communications and Presentation Templates	Communications and Presentation Templates
Work Intake & Prioritization	Work Intake
News Letter	Newsletter Archive
Ask the Expert	Ask the Expert SharePoint
CRD	RM Client Consulting & Deployment
Risk & Governance	SO Risk Management
All Associates Meetings	All Associates Overview & Procedures
SO Connections	Connections Homepage
Career Pathing	Career Paths

Data Management
SO Supported Databases
All Enterprise References - PostgreSQL

Topic	Guidelines

RMMO	It contains both Transactional and ETL legacy data
Advmkt	Legacy data
avenue	Legacy data
CIS_Cache	It has TDV cached data
CIS_Cache_DR	It has TDV cached data
ECMFIIS	Legacy Aarow data
FeeTransparency	Pricing analysis data capture
FILSBR	It FIL WISE Project transactional data capture
UBTI	Legacy FinOps data
WI_AdhocReporting	
ECM_Fund_Action	Scott Todd team data for fund action processing
GlobalMO	QIS Application transactional data capture
SOPrime	Database has modern apps transactional data only. ** We will capture transactional data on postgresql server only all ETL will be captured through Data virtualization tool. Azure DB for PostgreSQL Technical Implementation Guide - Draft - ECC Cloud Data Security Automation - Enterprise Confluence (fmr.com) AD Integration with Azure Database for PostgreSQL - ECC Cloud Data Security Automation - Enterprise Confluence (fmr.com) Azure PostgreSQL Flexible Server Setup - SDA Enterprise Power BI content - Enterprise Confluence (fmr.com) CAPE Recommendations - SDA Enterprise Power BI content - Enterprise Confluence (fmr.com) Azure Documentation - SDA Enterprise Power BI content - Enterprise Confluence (fmr.com)

Database Standards

1. Naming conventions
   a. table or database names - small letter with underscore between 2 words
   b. application access service account naming convention.
2. Data modeling - 2NF or 3NF
3. logging standards - NA
4. Recovery Standards - AWS standard
5. Performance standards - NA

Topic	Guidelines

How to get access

1. how application should access (write/update, read) - service account
2. how induval can access - service account with read access

Topic	Guidelines
SOPrime	PostgreSQL Flexible Server Database - WI HW Recordkeeping - Enterprise Confluence (fmr.com)

Deployment Standards

1. non prod deployments - manual
2. logging standards / trace standards - NA
3. prod deployment- manual

Topic	Guidelines

Data Goverance

security / integ / governance / privacy - AWS standard

Topic	Guidelines

Data Retention

Topic	Guidelines

Data Virtualization
Tableau

Power BI

Alteryx

Project Management Methodologies

RPA
Robotic Process Automation and Guidelines:

Topic	Guidelines
RPA automation Guidelines	Here are the guidelines for RPA automation https://rpa.fmr.com/

Service Accounts

- Standards for creating service accounts

- Recommended Naming conventions

- Maintenance / ownership

SO Business Routines
Standards for Business Routines

- Learning Day

- Connection Committee

- Quarterly Planning

- Quarterly All Associates Meeting Process

- Bi-Annual Customer Satisfaction Survey Process

- Annual Hackathon

Software Development
Documentation
Solution office standard is to have the following mandatory topic documentation for every tool or application.

Topic	Guidelines
Introduction	All applications must have documentation of its overview, business problem statement, key features, functionality and target users group. Please provide a link to access the application.

Getting Access	Detail the steps for requesting access, any required permissions, and the process for approval. Include screenshots or links to relevant forms if applicable.
Governance & Oversight	Describe the roles and responsibilities of key stakeholders, any committees or boards involved, and the processes for decision-making and compliance.
Learn more about tool	Include links to tutorials, training materials, webinars, and other educational resources. Highlight any community forums or support channels available.
Architecture overview	Use diagrams to illustrate the system components and their interactions. Describe the main modules, data flow, and any external dependencies
Observability Dashboard	Provide instructions on accessing the dashboard, interpreting key metrics, and performance/ alerts.

Secure Coding Practices

To Solution Office standards, these guidelines outline essential secure coding practices to ensure the integrity, confidentiality, and security of our applications.

Topic	Guidelines
Input Validation	To prevent injection attacks, validate input length, format, and type; use whitelisting; sanitize inputs
Authentication & Authorization	Verify user identities and control access. Implement strong password policies; use MFA if required; ensure proper session management
Data Encryption	Protect sensitive data. Use strong encryption algorithms; encrypt data before storage; use TLS
Error Handling	Prevent information leakage. Avoid detailed error messages; log errors securely; provide user-friendly messages
Secure Dependencies	Manage third-party libraries securely. Regularly update dependencies; use trusted sources; monitor for vulnerabilities
Code Reviews & Testing	Identify and fix security issues early. Conduct regular code reviews; use automated testing tools; perform penetration testing
Sensitive Information	Protect sensitive information from exposure. Do not hardcode passwords, client secrets, tokens, etc., in the repository Store all usernames, passwords, tokens, and client secrets in HashiCorp Vault Store and read all pipeline credentials in JC Vault

Architecture Guidelines

Per Solution Office Standards, all applications must adhere to the following architectural guidelines.

Topic	Guidelines
Azure AD SSO Integration	All applications must be integrated with Azure AD for SSO to allow only authenticated users to access our applications. Please use this link for more details: Azure AD for SSO integration - OpenID Connect - SDC Enterprise Access Management - Enterprise Confluence (fmr.com)
Developer toolkit overview	WI Architecture has proposed all teams to use developer toolkit as the standard framework for all Spring boot apps. Below link provides complete information on developer toolkit. Developer Toolkit Overview
Developer toolkit developer setup guide	This link provides step by step instructions for developers to setup a new application with toolkit framework. Guides for Developing WI Applications For developer tool kit provided libraries, please go through Developer Toolkit - Libraries
Developer toolkit framework for logs	Toolkit logging library supported by developer toolkit dp-logging-support - Fidelity Investments Developer Toolkit - Enterprise Confluence (fmr.com) **Note: As a standard all teams must use the combination of FID_USER_ID + FID_LOG_TRACKING_ID as the correlation id for info logs.**
Apex front-end framework - Angular	WI Architecture supports Apex framework as a standard for all front-end apps using Angular. Below link provides guidelines on how to setup and build a UI app using apex. Apex Kit for Web	Home (fmr.com)
Docker containerization	All apps must be dockerized to build, run and deploy to AKS/EKS
Hashicorp vault	All sensitive information like credentials, tokens and secrets must be stored in vault using toolkit library dp-vault. More information can be found in the link below dp-vault

Fidelity approved libraries	Using 3rd party license is allowed but it must be a fidelity approved libraries. Fidelity approved licenses can be found here: IntelEA - Inner Source (fmr.com)

API Standards
SO standards for Secure API services and implementation guidelines.

Topic	Guidelines
REST services	All rest call must be secured. Here are the guidelines from ECS to follow. Securing REST Services Implementing REST API Development using Developer Tool kit guidelines: Guide - REST API Development Common components for Fidelity REST APIs. This includes API error codes, headers information, parameters etc., Components Overview
SOAP services	All SOAP service call must be secured. Here are the guidelines from ECS to follow. Securing SOAP Services

Error handling and Logging Standards
SO standards for application error handling and application logs

Topic	Guidelines
HTTP Error codes	Here are the list of all error response code by WI Architecture and developer toolkit. https://swaggerhub.fmr.com/domains/Enterprise_Org/Enterprise-Common-Domain/
Application Logging Standards	Here are the standards and guide for application logs Guide - Logging TBD with sample and SO applications standards.
Observability	Datadog DATADOG#INFRASTRUCTUREDASHBOARD Splunk TBD

Dependency Management Guidelines

Version Control Practices

- GIT
- repo classifications
- Commit Guidelines
- Branching Strategy

Code Review & Quality
Guidelines for the code reviews, code quality and quality metrics

Topic	Guidelines
Code Documentation	The application team should document such as functional or flow chart for all the complex use cases and publish it to confluence.
Code review guidelines	Please follow these guidelines for the code reviews Code Review Guidelines - FTG Enterprise Architecture - Enterprise Confluence (fmr.com)
Governance gate	All applications must run governance gates to check if all security checks are passed using Jenkins core pipeline. Governance Gate Security (fmr.com)

Code quality	SonarQube is a Static Code Analysis Tool that does continuous inspection of source code and provides reports for the code quality of your project. SONAR Code Quality Standard - CBPT/FIT Architecture - GPS - Enterprise Confluence (fmr.com) SonarQube reports for applications can be found here Projects (fmr.com) **Note: Review SONAR report helps us to discover application code cognitive complexity, Code smells, security, bug, duplication and test coverage.**

CI/CD Best Practices

Testing Standards

- Unit test cases
- Integration test
- Automated test
- Quality test
- Performance test
- Stress test
- PEN test

Software Release Guidelines

Salesforce

Work Intake

Topic	Guidelines
Work Intake overview	This presentation covers the overall work intake initiative and prioritization framework • Intake and Prioritization.pptx
Work intake request	This document covers the process on how to open a request to Solutions Office. • Process Documentation
Work intake Routing	This excel provides list of links to Jira boards and point of contacts for any questions related to specific work prioritization. • Request Routing Logic

Production Support
Application Support
Production Support Process For Users:

Stage 1 – Ticket assignment - L1 support

- Users will submit a salesforce/Jira ticket and reach out to production support team.
- Production support team will investigate the issue and perform initial Triage.
- Production support team to perform due diligence on the issue to resolve the issue.
- If production support team is unable to resolve the issue, then open a JIRA to L2 team and reach out to the Business Analyst.
- Production support team to keep the original ticket active until the issue is resolved.

Stage 2 – BA support - L2 support

- Production support analyst to reach out to Business Analyst to identify the root cause.
- BA to perform the analysis and provide resolution if its a process related question.
- BA to redirect the JIRA to developers if they notice an application issue.

Stage 3 – Development support - L3 support

1. BA to work with dev team to further investigate, fix, test and deploy the fix.
2. If the fix is an enhancement team to add it to backlog.

3. BA to report the fix back to Production support team and close the L2 Jira.
4. Production support team will convey the issue back to users and close the initial ticket.

Production Support Process Technical:

- When dev team receives application errors or outages from Splunk, infrastructure or SNOW team to proactively work on resolving issues.
- Application outages and server upgrades take precedence over development activities.
- Dev team to track all the activities in JIRA.
- Developers to close incident and Jira tickets.

Application Team	Production Support Model
Neptune	Production Support Hard Card - Solutions Office Support - Enterprise Confluence
Argus	https://confluence.fmr.com/spaces/SO/pages/1724288892/Production+Support

Database Support

Data Virtualization Support

Business & Routines Support