OKLAHOMA
Office of Management
& Enterprise Services

Custom Application Development for Waterfall Methodology

Introduction

Whenever an exception is given to not using an agile methodology, custom development may follow a waterfall methodology. This is an alternate to agile and scrum methodology for building custom applications. The key difference in software projects using waterfall methodology is each step is completed in sequence. The waterfall methodology is a linear process where agile is an iterative process. In waterfall methodology, there is an assumption that once a project has started, very few, if any, changes should take place to the requirements.

Purpose

To describe the requirements for developing, enhancing and maintaining custom developed applications and integrations using waterfall methodology.

Standard

- Requirements gathering
  - All stakeholders are invited to the requirements gathering meeting.
  - Roles and responsibilities on the project are identified.
  - A step-by-step guide is created and used by developers to build applications.
- Design
  - The team works together to design and create the systems and components include brainstorming, architecture and decisions needed to determine how to complete the project.
  - Teams identified and roles and responsibilities defined.
  - Design is defined in on-premises, cloud or hybrid.
- Implementation: The team builds components of the system, a working product, using documentation gathered in the requirements and design phases.
- Testing
  - Every component designed in the build phase is tested and verified, including how components work together in the application or system to delivery.
  - The functionality of an application is verified, and any bugs are fixed as issues arise.
  - All processes are documented step-by-step and followed for user acceptance.
  - Deployment occurs once the application or system has been accepted.
- Maintenance: After the software has been successfully deployed, changes to the application will occur over time to accommodate business process changes and to keep the system up to date.
- Tiered environments.
  - Custom applications must have a separation between production and non-production environments.
  - At a minimum, there must be development, test, and a production environment for custom developed applications. In some cases, for small integrations or applications, the development environment can be the developer's workstation.
  - Role-based control must be created for access to each environment. A production environment will only be granted on an as-need basis.
- Code-related artifacts: All code artifacts produced during custom application development must be version controlled using Git and hosted on GitHub.

- Change management: Once a product is released into the production environment, all change management policies must be adhered to when any updates which require changing the code in that environment arise.

Compliance
This standard shall take effect upon publication and is made pursuant to Title 62 O.S. §§ 34.11.1 and 34.12 and Title 62 O.S. § 35.8. OMES IS may amend and publish the amended standards policies and standards at any time. Compliance is expected with all published policies and standards, and any published amendments thereof. Employees found in violation of this standard may be subject to disciplinary action, up to and including termination.

Rationale
To coordinate and require central approval of state agency information technology purchases and projects to enable the chief information officer to assess the needs and capabilities of state agencies as well as streamline and consolidate systems to ensure that the state delivers essential public services to its citizens in the most efficient manner at the lowest possible cost to taxpayers.

Revision history
This standard is subject to periodic review to ensure relevancy.

Effective date: 01/18/2022	**Review cycle:** Annual
Last revised: 05/24/2022	**Last reviewed:** 07/26/2023
Approved by: Joe McIntosh, Chief Information Officer	