

Development Methodology – The Microsoft Solutions Framework

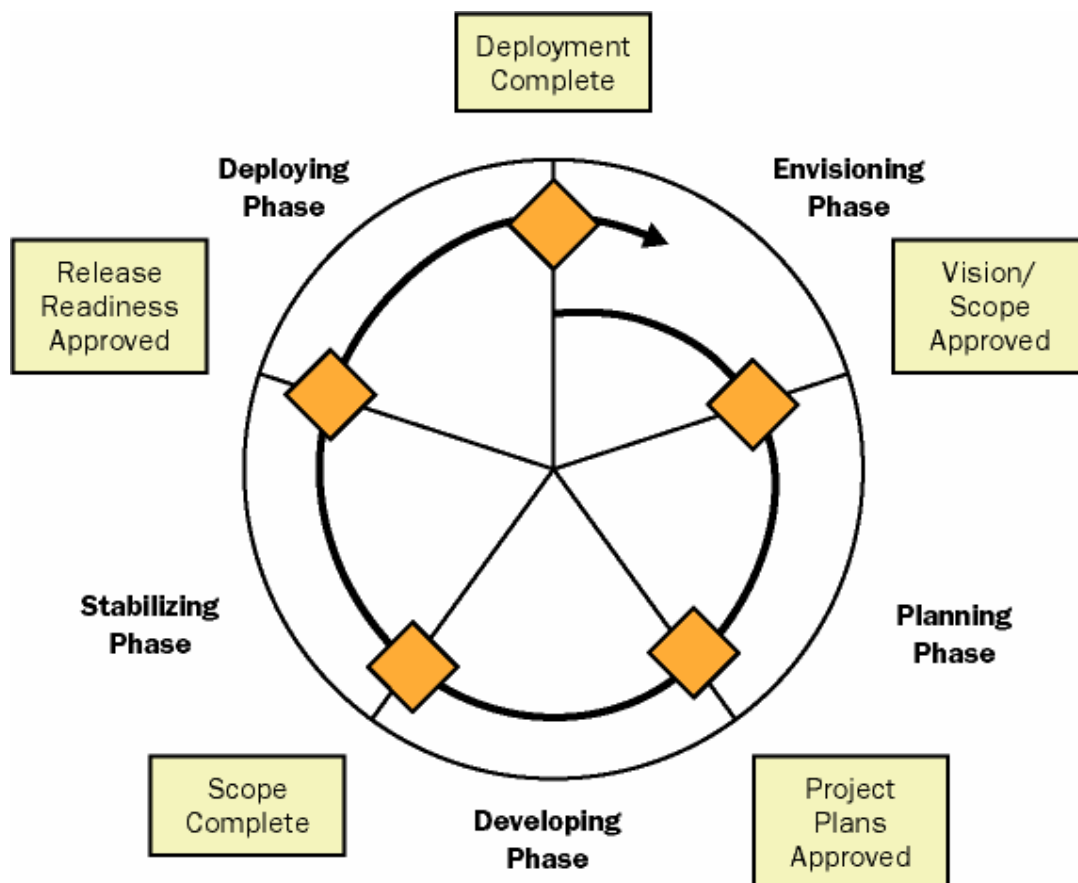
OTN has years of experience in managing and delivering custom projects of a complex nature such as this contract will evolve into. Over the years, this experience has translated into a well-defined, documented methodology for managing such projects. The Microsoft Solutions Framework (MSF) Process Model combines the best principles of the waterfall and spiral models. It combines the waterfall model's milestone-based planning and resulting predictability with the spiral model's benefits of feedback and creativity.

Phases of the MSF Process Model

The MSF Process Model consists of five distinct phases:

- Envisioning
- Planning
- Developing
- Stabilizing
- Deploying

Each phase culminates in a milestone. Figure below illustrates the phases and milestones of the MSF Process Model.



MSF Risk Management Process

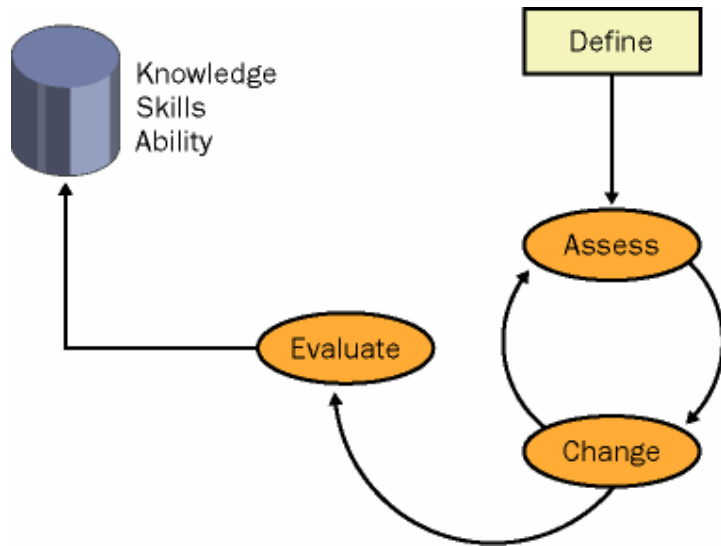
The MSF risk management discipline advocates proactive risk management, continuous risk assessment, and decision making throughout the project life cycle. The team continuously assesses, monitors, and actively manages risks until they are either resolved or turn into problems to be handled as such.

The MSF risk management process defines six logical steps through which the team manages current risks, plans and executes risk management strategies, and documents knowledge for the enterprise.

1. Risk identification allows individuals to identify risks so that the team becomes aware of any potential problems.
2. Risk analysis transforms the estimates or data about specific project risks that emerges during risk identification into a form the team can use to make decisions about prioritization.
3. Risk planning uses the information obtained from risk analysis to formulate strategies, plans, and actions.
4. Risk tracking monitors the status of specific risks and documents the progress in their respective action plans.
5. Risk control is the process of executing risk action plans and their associated status reporting.
6. Risk learning formalizes the lessons learned and relevant project documents and tools, and records that knowledge in reusable form for use within the team and by the enterprise.

MSF Readiness Management Process

The MSF readiness management discipline includes a process to help develop the knowledge, skills, and abilities (KSAs) needed to create and manage projects and solutions. Figure below illustrates the four steps of the readiness management process: define, assess, change, and evaluate.



Each step of the process includes a series of tasks to help reach the next milestone.

- Define. During this step, the team identifies the scenarios, competencies, and proficiency levels needed to successfully plan, create, and manage the solution. This is also the time to determine which competencies and corresponding proficiency levels are required for each role in the organization. The assigned role determines whether an individual needs to be proficient in one or many of the defined competencies.
- Assess. It is during this step that the team begins analysis of the current competencies as they relate to the various job roles. The purpose of this analysis is to determine the skills of individuals within each of these roles. The team then compares the competencies identified in the previous step to the current competencies. Comparing current skill levels to required skill levels is necessary to develop a learning plan, so that team members can reach the necessary competency levels.
- Change. During this step, team members begin to improve their skills by means of structured learning to raise current proficiency levels to the desired levels. This step consists of:
 - Training. The learning and mentoring that occurs according to what was outlined in the learning plan.
 - Tracking progress. The tracking of progress that enables individual or overall readiness to be determined at any time during the life cycle. This tracking enables the team members to make necessary adjustments to the learning plan.
- Evaluate. During this step, the team determines whether the learning plans were effective and whether the lessons learned are being successfully implemented on the job.

The MSF readiness management process is an ongoing, iterative approach to readiness. The process is adaptable for both large and small projects. Following the steps in the process helps manage the various tasks required to align individual, project team, and organizational KSAs.

MSF Project Management Process

To deliver a solution within project constraints, strong project management skills are essential. Project management is a process that combines a set of skills and techniques to address the following tasks:

- Integrate planning and conduct change control
- Define and manage the scope of the project
- Prepare a budget and manage costs
- Prepare and track schedules
- Ensure that the right resources are allocated to the project
- Manage contracts and vendors and procure project resources
- Facilitate team and external communications
- Facilitate the risk management process
- Document and monitor the team's quality management process

The MSF Team Model does not contain a project manager role; however, most project management functions are conducted by the MSF program management role.

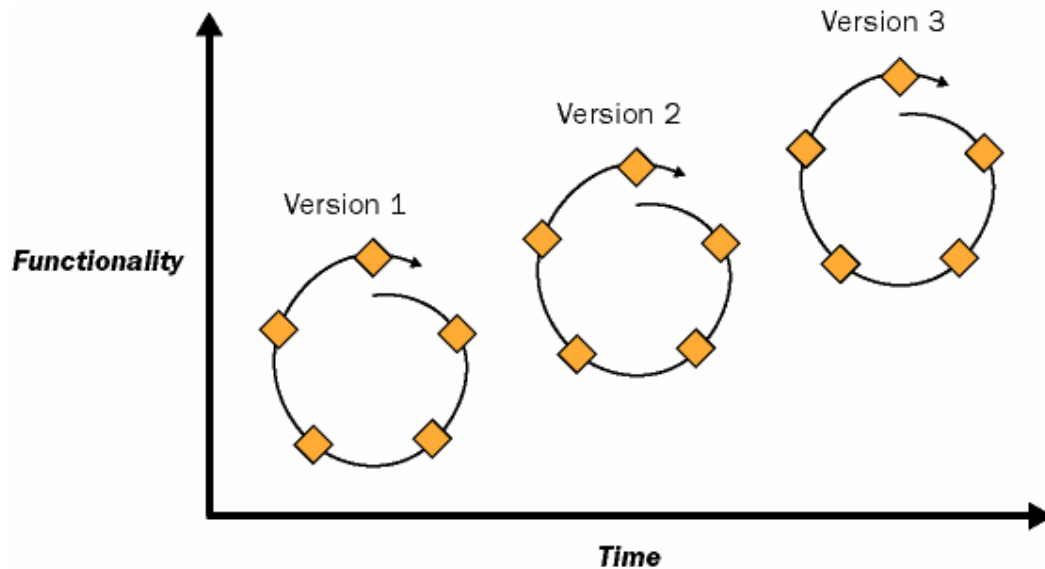
The differentiating factor of the MSF approach to project management is that the project management job function and activities do not form a hierarchical structure in the decision-making process. MSF advocates against a rigid, dictatorial style of project management. This rigid style hinders the development of an effective team of peers, which is a key success factor of MSF.

In MSF, all team roles fulfill a specific goal, all of which are considered equally important. Major decisions are made by consensus of the core team. If that consensus cannot be achieved, the program management role makes the final decision on the issue by transitioning into the role of decision leader to enable the project to continue. Program management makes the decision with the goal of meeting the customer's requirements and delivering the solution within the constraints. After the decision is made, the team returns to operating as a team of peers.

Versioned Releases

When using MSF, a team develops solutions by building, testing, and deploying a core of functionality, and then adding sets of features to the solution in every release. This is known as a version release strategy.

Figure below illustrates how functionality develops during the creation of many versions of a solution. The time between versions depends on the size and scope of the project.



Versioned releases improve the team's relationship with the customer and ensure that the best ideas are reflected in the solution. Customers will be more receptive to deferring features until a later release if they trust the team to deliver the initial and subsequent solution releases on time. Several guidelines facilitate the adoption of versioned releases:

- Create a multiple version release plan. Thinking beyond the current version enhances a team's ability to make good decisions about what to create now and what to defer. This allows the team to make the best use of the available resources and schedule.
- Work through iterations rapidly. A significant benefit of versioning is that it delivers usable solutions to the customer quickly and improves them incrementally over time. Maintain a manageable scope so that iterations are achievable within acceptable time frames.
- Deliver core functionality first. Delivering a basic solution that is solid and usable is more effective than developing a solution that the customer cannot use for weeks or months. Delivering core functionality first enables developers to incorporate customer feedback that will motivate feature development in subsequent iterations.
- Create high-risk features first. During risk assessment, the team identifies the riskiest features. Schedule these features for proof-of-concept testing first.

Phases

Envisioning Phase

The MSF process begins with the envisioning phase. Envisioning can be defined as creating a broad description of the goals and constraints of the project. In this phase, the team is identified and what the team must accomplish for the customer. The purpose of the envisioning phase is to build a shared vision of the project among all the key stakeholders of the project.

During the envisioning phase, the program management team identifies the tasks and deliverables that address the requirements and goals of the project. This phase culminates in a vision/scope approved milestone. This milestone indicates that the customer and the team agree about the purpose and direction of the project.

Planning Phase

During the planning phase, the team determines what to develop and plans how to create the solution. The team prepares the functional specification, creates a design of the solution, and prepares work plans, cost estimates, and schedules for the various deliverables.

The planning phase involves the analysis of requirements. These requirements can be categorized as business requirements, user requirements, operational requirements, and system requirements. These requirements are used to design the solution and its features and to validate the correctness of the design.

After gathering and analyzing the requirements, the team creates the design of the solution. The team creates user profiles that specify the various users of the solution and their roles and responsibilities. The team then creates a series of usage scenarios. A usage scenario specifies the activity performed by a particular type of user. Therefore, the team needs to create usage scenarios for all user profiles. After creating usage scenarios, the team creates use cases for the usage scenarios. A use case specifies the sequence of steps that a user will perform in a usage scenario.

Developing Phase

During the developing phase, the project team creates the solution. This process includes creating the code that implements the solution and documenting the code. In addition to developing code, the team also develops the infrastructure for the solution.

Development Process

The team performs the following key tasks during the developing phase:

- Starting the development cycle. Verification that all tasks identified during the envisioning and planning phases have been completed so that the team can begin developing the solution.
 - Creating a prototype application. Verification of the concepts of the solution design in an environment that resembles the environment to which the solution will be eventually deployed. This environment is as similar as possible to the production environment. This task is completed before development begins.
 - Developing the solution components. Development of the solution's core components and the extension of these components to the specific needs of the solution.
 - Building the solution. A series of daily or frequent builds that culminate with major internal builds that signify points when the development team is delivering key features of the solution.
 - Closing the developing phase. Completion of all features, and delivery of code and documentation. The solution is considered complete, and the team enters a milestone approval process.

Stabilizing Phase

During the stabilizing phase, the team performs integration, load, and beta testing on the solution. In addition, the team tests the deployment scenarios for the solution. The team focuses on identifying, prioritizing, and resolving issues so that the solution can be prepared for release. During this phase, the solution progresses from the state of all features being complete as defined in the functional specification for this version to the state of meeting the defined quality levels. In addition, the solution is ready for deployment to the business.

The deliverables of the stabilizing phase are as follows:

- Final release
- Release notes
- Performance support elements
- Test results and testing tools
- Source code and executable files
- Project documents
- Milestone review

Deploying Phase

During this phase, the team deploys the solution technology and site components, stabilizes the deployment, transfers the project to operations and support, and obtains final customer approval of the project. After deployment, the team conducts a project review and a customer satisfaction survey. The deploying phase culminates in the deployment complete **milestone**.