

# Figtree Methodology Overview

How we develop software

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# What is a Methodology?

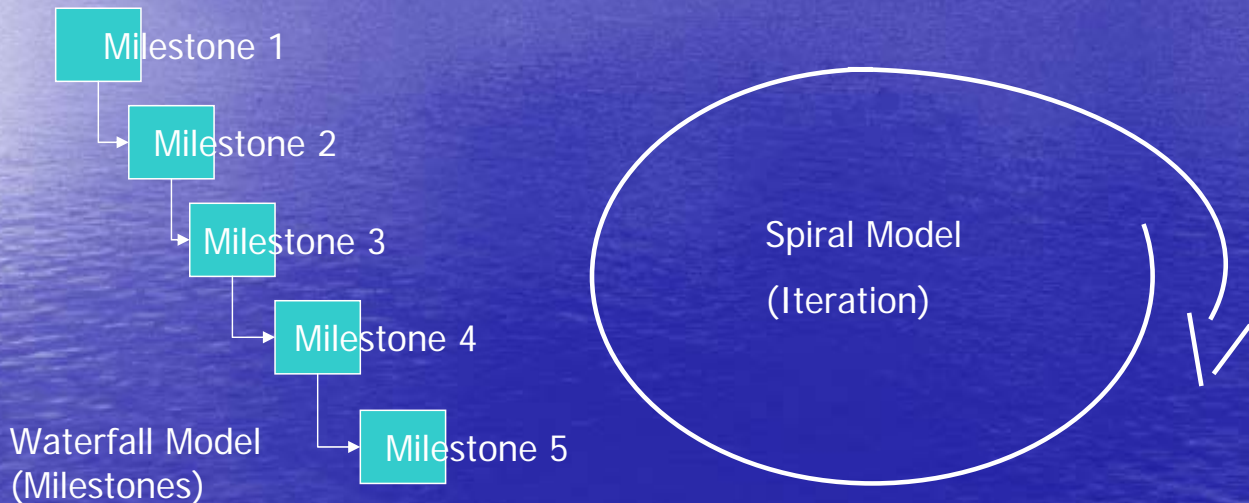
- A set of models, principles, and guidelines for designing and developing software solutions

By Figtree Consulting, Inc.

This presentation will show you some of our practices and the guidelines that we follow in software development and why we follow them.

# Waterfall and Spiral Process Models

- Two divergent methodologies



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There are many 'models' that are used to explain software development practices. Two significant ones are the Waterfall and the Spiral model.

The Waterfall model includes clear milestones which have specified deliverables. The deliverables might include such items as the overall plan for the system, the data structures, the programming specification, the test plan, the implementation plan, etc. The assumption with the Waterfall model is that once a step is completed, you move on to the next – you don't move backwards through any of the steps.

In contrast, the spiral model assumes a great deal of iteration. Some planning is done, a first prototype or version of the software is completed, the customer provides feedback, the software is updated, the customer again provides feedback. This process is repeated as many times as necessary until the project is successfully completed.

# Waterfall vs. Iterative

## (Engineering vs. Agile Approach)

- Predictability
- Design and architecture
- Clear Hierarchy
- Discipline
- Fixed goals
- Constant cycling
- Close customer involvement
- Shared responsibility
- Changes managed

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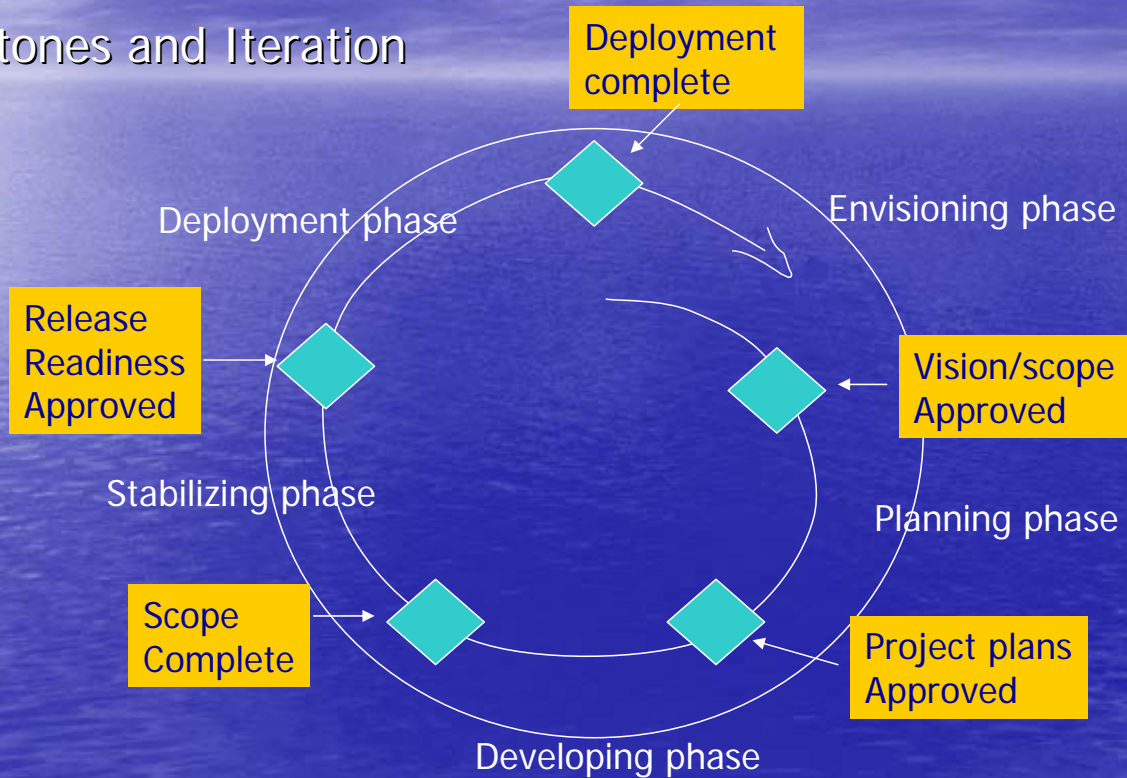
The Waterfall model corresponds to an engineering view of a project -- the more time that is spent up front in design and documentation, the better the result. The Spiral model is more of an agile approach in which constant customer feedback refines the product until it is complete.

There are good points to each of these models.

If you are building a bridge, you need to know exactly what the characteristics of the finished product will be before you start digging. Planning is essential in software projects as well but there are so many variables when developing a business system that some flexibility is essential. While planning ahead can save a great deal of time later on, developing software without close customer involvement and the ability to incorporate change often leads to software that does not fulfill the client's requirements.

# Our Process Model Combines These Models

Milestones and Iteration



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The development model that Figtree uses includes both milestones and iteration. The milestones help to insure that a project is well thought out before any programming is done. The iterative approach allows for developing software in phases. Each delivery is kept relatively small so that the client can review it and any necessary modifications can be made before a lot of time and money has been spent going in a direction that might need to be altered.

# Basic Principles

## The Best of Both Models

- Define accountability, share responsibility
- Empower team members
- Focus on business value
- Share project vision
- Foster open communications
- Invest in quality

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Our model makes it clear exactly what is supposed to be done and by whom but all team members take responsibility for the project's success.

# Process Consists of Five Phases

Each phase has clear milestones

Process repeats as often as necessary

- Envisioning
- Planning
- Developing
- Stabilizing
- Deploying

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# Project Team

- Clear roles, responsibilities, and goals of individual members to the success of the project.
- Increases the accountability of each team member.
- This model forms the basis of creating effective, resilient, and successful project teams.

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No project is the responsibility of only one individual. The different roles that team members play ensure that each point of view: client, end-user, programmer, project manager will be taken into account to build the best possible solution.



# Team Model

- The team works toward a single vision, and team members operate as peers. Within the team, each role contributes to and is equally responsible for the success of the project.

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# Key Roles of Team Model



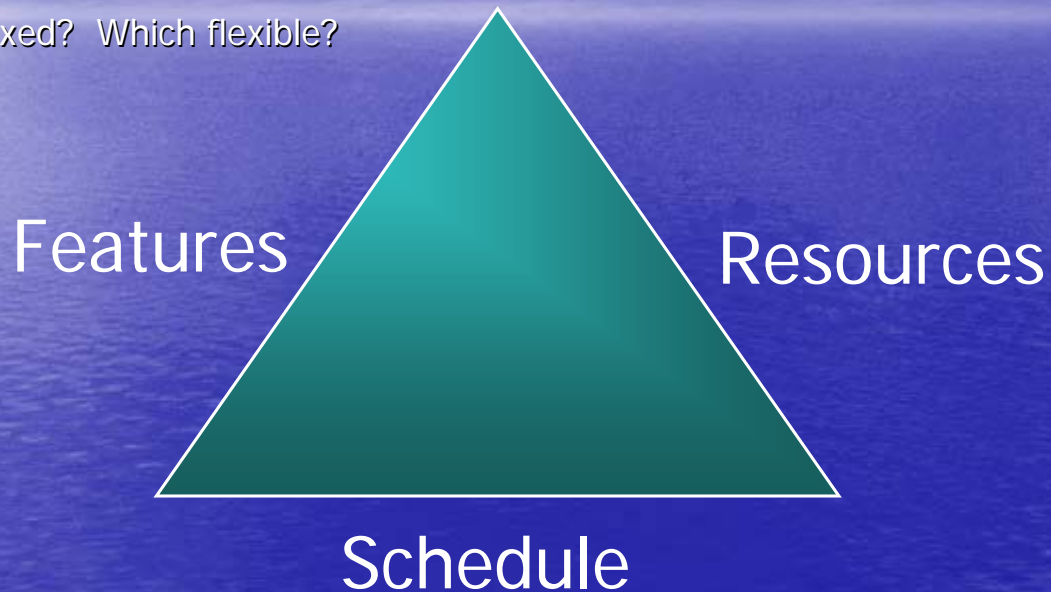
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Many points of view must be taken into account to build successful software. Communication is key. Each role may be taken by one or more team members depending on the complexity of the project.

# Tradeoffs

Deciding on project scope:

Which are fixed? Which flexible?



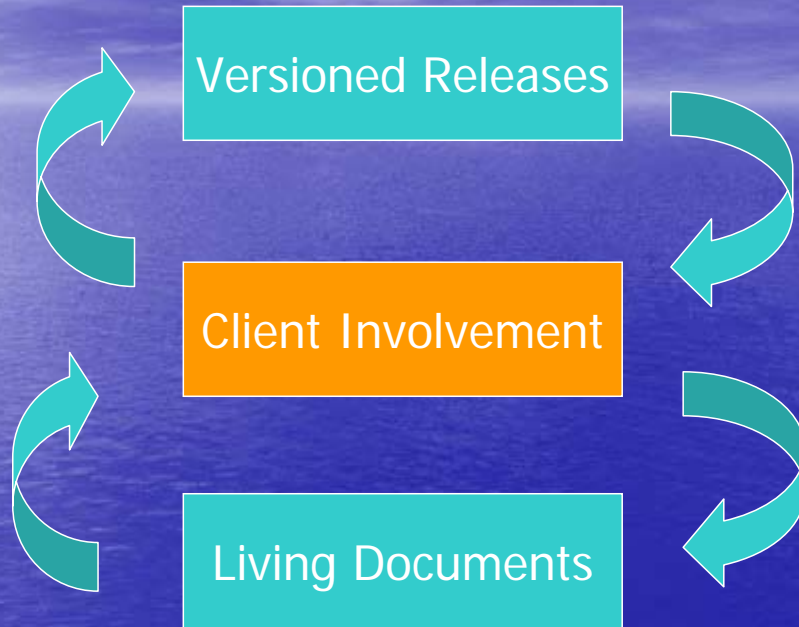
**Quality** should never be the 4<sup>th</sup> side!  
Being unrealistic on these tradeoffs can lead to a drop in Quality.

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There are often tradeoffs to be made when developing an application. If you need a lot of features, the project is likely to cost more and may take more time to build. If it is essential to have the project completed by a certain date, you need to decide if you will cut down on the feature set or put more resources (money and or people) into the development. If the budget is limited, you may need to cut the feature set.

Quality, however, should never be negotiable. If the project is not planned and developed correctly, it is doomed to failure.

# Iteration



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Client involvement and communication is key to a successful solution. Client feedback after each release leads to fine tuning of the project plans, leads to a successful project.

# Risks are Assessed at Each Phase

- What are the risks associated with this project?
- Which can be dealt with and eliminated?
- Which can be mitigated?
- Be prepared

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Paying attention to what might go wrong from the beginning and reviewing these risks often during project development helps to ensure that any hurdle can be overcome.

# Envisioning Phase

- Setting up the team
- Defining the project structure
- Defining the business goals
- Assessing the current situation
- Creating a vision statement
- Defining requirements and user profiles
- Developing a solution concept
- Assessing risk

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In the envisioning phase, Figtree works with our client to define the business goals. Developing a clear vision statement proves that Figtree and our client understand the project goals in the same way. Looking back at this vision statement as the project is developed will help to keep the project on track.

# Vision Statement

- A shared and clearly articulated vision is fundamental to the success of the project.

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# Deliverables of Envisioning Phase

- Develop the documentation to provide context and direction for the team for the remainder of the project, and communicate the project vision and scope to the customer.

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# Planning Phase

- Conceptual design
- Logical design
- Physical design

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The planning phase provides the architecture for the project. The documentation created during this phase will become the blueprint for development.

# Deliverables of Planning Phase The "Blueprints" for the Project

- Functional specification
- Risk Management plan
- Master project plan and schedule

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This documentation will make the steps required to complete the project clear and will make it possible to build a realistic project schedule.

# Development Phase

- Starting the development cycle
- Creating a prototype
- Developing the solution components
- Building the solution
- Deliverable is solution coded to specifications

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The development phase covers many steps and many considerations. Our programmers follow standards for documenting, writing and reviewing their code. They share the same development philosophy and guidelines. Our programming process ensures that we write well organized, manageable code which can be updated and enhanced with a minimum of effort.

# Stabilizing Phase

- Testing
- Debugging
- User experience refinements

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Software is tested on many levels including:

Does it fulfill client business requirements?

Does it give consistent and correct results?

Does it work without 'breaking'?

Does it provide a good user experience? Is it pleasant and easy to use?

# Stabilizing Phase Deliverables

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

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# Deployment Phase -- Milestones

- Core components deployed
- Site deployments complete
- Deployment stable

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There are many issues to be resolved before the completed and tested software can be delivered. Some of these issues might be:

Importing data; communicating with other systems; setting up and preparing hardware; making sure that other related required software is in place; making provisions for security; making provisions for regular backups; setting up user rights; training users; preparing a cutover plan.

# Deliverables – Deployment Phase

- Develop Required Documentation
  - Help System
  - Run Book
  - Technical documentation
- Develop a training plan
- Technical Project Documentation
  - Final versions of all project documents
  - Customer satisfaction data
  - Definition of next steps

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# Overall Figtree Philosophy

- Shared Team vision
- Clear accountability, shared responsibility
- Review and analysis at each stage
- Learn from all experience

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Learning from experience is fundamental to Figtree's methodology. Figtree has implemented a great many software projects in our 20+ year history. We have learned more with each installation and each installation has helped us hone our development model and our guidelines.



# Sources

- Figtree's methodology is based on the Microsoft's Solution Framework as described in *Analyzing Requirements and Defining Solution Architectures*, Copyright 2003 by Microsoft Corporation

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