

SOFTWARE PROJECT SURVIVAL GUIDE

Microsoft®

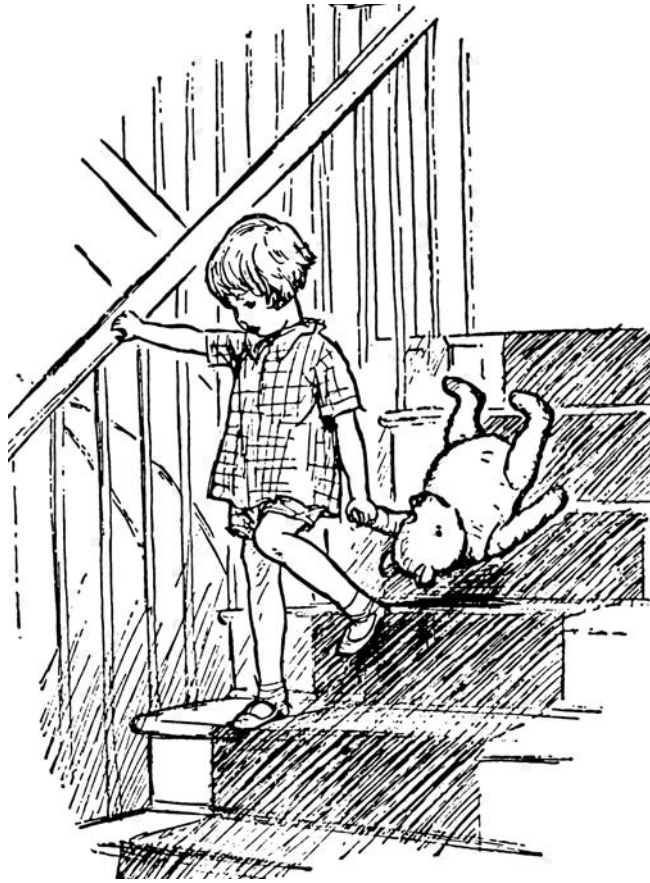
*How to Be
Sure Your First
Important
Project Isn't
Your Last*



Steve McConnell

*Author of Code Complete
and Rapid Development*

✓ **Best
Practices**



*Here is Edward Bear, coming downstairs now, bump, bump, bump on the
back of his head, behind Christopher Robin.*

*It is, as far as he knows, the only way of coming downstairs,
but sometimes he feels that there really is another way,
if only he could stop bumping for a moment and think of it.
And then he feels that perhaps there isn't.*

Software Project Survival Guide

Table of Contents

Cover

Copyright page

Contents

Acknowledgments

Preliminary Survival Briefing

Who Should Read This Book

Kinds of Projects This Book Covers

A Note to Advanced Technical Readers

This Book's Foundation

Part I: The Survival Mind-Set

Chapter 1: Welcome to Software Project Survival Training

Survival Needs

Survival Rights

Survival Checks

Chapter 2: Software Project Survival Test

Survival Test Questions

Survival Test

Interpreting the Survival Test

Chapter 3: Survival Concepts

The Power of "Process"

Negative View of Process

Process to the Rescue

Process vs. Creativity and Morale

Transitioning to a Systematic Process

Table of Contents

Upstream, Downstream

Cone of Uncertainty

Implications for Project Estimation

Chapter 4: Survival Skills

Planning

Examples of Software Planning

Planning Checkpoint Review

Two-Phase Funding Approach

Preparing for the Planning Checkpoint Review

Agenda for the Planning Checkpoint Review

Major Benefits of the Planning Checkpoint Review

Risk Management

Project Control

Project Visibility

Peopleware

User Involvement

Product Minimalism

Focus on Shipping Software

Chapter 5: The Successful Project at a Glance

Intellectual Phases

Project Flow

Benefits of Staged Delivery

Costs of Staged Delivery

Planning Phases

Staff Buildup

Code Growth Curve

Major Milestones and Deliverables

Part II: Survival Preparations

Chapter 6: Hitting a Moving Target

Change Control Procedure

Table of Contents

Change Control Benefits

- Benefits of Automated Revision Control

Common Change Control Issues

- How to Consider Changes

- When to Consider Changes

- How to Handle Small Changes

- How to Handle Political Issues

- Which Work Products to Place Under Change Control

Committing to Change Control

Chapter 7: Preliminary Planning

Project Vision

- Defining What to Leave Out

- Committing to the Vision

Executive Sponsorship

Project Scope Targets

Publicizing Plans and Progress

- Publicizing Progress Indicators

Risk Management

- Committing to Risk Management

- Risk Officer

- Top 10 Risks List

- Detailed Risk-Management Plans

- Anonymous Risk-Reporting Channel

Personnel Strategies

- Personnel Development

- Staff Buildup

- Team Organization

Time Accounting

The Software Development Plan

Chapter 8: Requirements Development

- Overview of the Requirements Development Process

- Identify a Set of Key End Users

Table of Contents

Interview the End Users

Build a Simple User Interface Prototype

- Use Paper Storyboards If Possible

- Revise the Prototype Until the End Users Are Excited About the Software

Develop a Style Guide

Fully Extend the Prototype

- Remember That It's a Throwaway Prototype

Treat the Fully Extended Prototype as the Baeline Specification

Write the Detailed End-User Documentation Based on the Prototype

Create a Separate, Non-User-Interface Requirements Document

Chapter 9: Quality Assurance

Why Quality Matters

The Quality Assurance Plan

- Elements of the Quality Assurance Plan

Defect Tracking

Technical Reviews

- General Review Pattern

- Keys to Success in Using Reviews

System Testing

Beta Testing

Work Products Covered by the Quality Assurance Plan

Supporting Activities

- Software Release Criteria

Chapter 10: Architecture

Easing into Architecture

Characteristics of a Good Architecture

- System Overview

- Conceptual Integrity

- Subsystems and Organizations

- Notation

- Change Scenarios and Change Strategy

Table of Contents

Reuse Analysis and Buy vs. Build Decisions

Approaches to Standard Functional Areas

Requirements Traceability

Support for the Staged Delivery Plan

How to Tell When Architecture is Complete

The Software Architecture Document

Chapter 11: Final Preparations

Project Estimates

Estimation Procedure Guidelines

Milestone Targets

Nontechnical Considerations in Estimation

Staged Delivery Plan

Breaking the Project into Stages

Stage Themes

Staged Delivery Plan Look-Alikes

Releasing the Releases

Revising the Staged Delivery Plan

Ongoing Planning Activities

Risk Management

Project Vision

Decision-Making Authority

Personnel

Update the Software Development Plan

Part III: Succeeding by Stages

Chapter 12: Beginning-of-Stage Planning

Why Is Stage Planning Needed?

Stage Planning Overview

Required Updates

Detailed Design

Construction

Test Case Creation

User Documentation Updates

Table of Contents

- Technical Reviews
- Defect Correction
- Technical Coordination
- Risk Management
- Project Tracking
- Integration and Release
- End-of-Stage Wrap-Up

Miniature Milestones

- Creating a Complete Milestone List
- Achieving Desired Quality
- How Far Out to Define Miniature Milestones
- Miniature Milestones on Small Projects
- Political Considerations
- What to Do If the Project Misses Its Miniature Milestones

Stage Planning and Management Styles

Chapter 13: Detailed Design

Architecture Revisited

- Program Organizations
- Reuse Analysis
- Requirements Resolution
- Requirements Traceability
- Construction Plan
- Correction of Defects in the Architecture

How Much Detailed Design Does a Project Need?

Technical Reviews

- Detecting Functional Defects
- Detecting Requirements Defects
- Reviewing for Project Objectives
- Cross-Training
- Reviews and Productivity

Detailed Design Documents

- Special Considerations for Stage 1 of the Project

Chapter 14: Construction

Table of Contents

Source Code Quality

- Code Standard

- Project Objectives

- Simplicity

Software Integration Procedure

- Done is Done

- Ensuring a Stable Foundation for Other Developers' Work

Daily Build and Smoke Test

Special Considerations for Stage 1

- Avoiding Premature Infrastructure Development

Tracking Progress

- Collecting Status Information

- Visibility

- Weekly Project Tracking Update

- Communication with Customers and Upper Management

Controlling Changes

Staying Focused

Is That All There Is to Construction?

Chapter 15: System Testing

Test Philosophy

- Extent of System Testing

Test Group's Support for Daily Builds

Developer's Support for System Testing

Strategic Quality Assurance

Chapter 16: Software Release

Treating Releases Seriously

When to Release

- Defect Counts

- Statistics on Effort per Defect

- Defect Density Prediction

- Defect Pooling

- Defect Seeding

Table of Contents

- Defect Modeling
- The Release Decision
- Defect Tracking and Communication

- Release Checklist

- Release Sign-Off Form

Chapter 17: End-of-Stage Wrap-Up

- Hold an Omnibus Change Board Meeting

- Recalibrate Estimates

 - Reestimating Productivity

 - "Reestimate" or "Slip"?

- Evaluate Performance Against the Project Plan

- Archive Project Media

- Update the Software Project Log

Part IV: Mission Accomplished

Chapter 18: Project History

- Gathering Project Data

 - Project Review Meeting

 - Project Review Questionnaire

- Software Project History Document

- Preparing the Project History Conclusions for Use on Future Projects

- Distributing Copies of the Software Project History

Chapter 19: Survival Crib Notes

- NASA's Success Checklist

 - NASA SEL's Dos for Software Success

 - NASA SEL's Don'ts for Software Success

- Other Survival Resources

 - Books

 - Internet Resources

Epilogue

Notes

Table of Contents

Glossary

Index

About the Author

Survival Guide Web Site