Project Control through Automation of the Methodology Implied in COCOMO Estimation

Paul Rook
GEC Software
London
England
A successful estimate requires:

- a trial design,
- a standard way of organising a software development project, down to subtask level, and the discipline to stick to this organisation, so that assumptions are not invalidated, and
- a trusted estimating method, preferably including a satisfactory cost model using data from previous projects.
OBJECTIVES

Delivery On Time
To Budget
To Specification

SOFTWARE PROJECTS WHICH MEET TARGETS
ORGANISE!

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METHODOLOGY INTEGRATION

- Who do I work for?
- What is expected of me?
- Why is it expected of me?
- How do I do what is expected?
- What must I produce?
- Who do I give it to?
- How will my product be evaluated?
- What tools and facilities are available to me?

SUPPORTING THE INDIVIDUAL ... TOOLFACE REQUIREMENTS
EXAMPLE PROJECT STRUCTURE - HIERARCHY
EXAMPLE PROJECT STRUCTURE: NETWORK

- Code A
- Design A
- Specify
- Design B
- Code B
- Specify Tests
- Item Test
- Integrate and Test

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METHODOLOGY INTEGRATION

SUPPORTING THE TEAM .. DATAFLOWS

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PROJECT STRUCTURE : EXAMPLE PROJECT

PM

CM

QA

PL

Module One

Module Two

Library A Coding

Library B Coding

Unit Coding

Defined Project Task
PROJECT STRUCTURE: EXAMPLE PROJECT

PM
CM
QA
PL
Module One
Module Two
Library A Coding
Library B Coding
Unit Coding

Defined Project Task Administration
Gate
Deliverable

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WHATEVER YOU DO RIGHT IN SOFTWARE DEVELOPMENT IS DONE EARLY!
PROJECT MANAGEMENT IN A GENERALISED IPSE

EXTENSION OF PROJECT MANAGEMENT INTO FRAMEWORK

⇒ SPECIFY METHODOLOGY
⇒ SPECIFY PROJECT STRUCTURE
⇒ SPECIFY WORK ALLOCATIONS

BECAUSE OF 'INSTANTIATION' OF PROJECT STRUCTURE AND VISIBILITY OF BOTTLENECKS THE FRAMEWORK TOOLS BECOME PROJECT MANAGEMENT TOOLS IN THEIR OWN RIGHT.

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GENERALISED LIFE CYCLE MODEL

USING A LIFE CYCLE MODEL ➔ METHODOLOGY

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THE GENOS FRAMEWORK

A GENERALISED MODEL FOR WORK ACTIVITY AND DATA FLOWS

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PROJECT BUILDING BLOCK

Deliverables

Administration

Task

Deliverables

Deliverable  -  Source Code, Design Document
Administration  -  Progress Reports
Task  -  Identified Project Element
GENOS STRUCTURE SUMMARY

USER
ALLOCATION

FILE
TOOLS
RESOURCES
DATAFLOWS

PROJECT VIEW
DELIVERABLE
ADMIN

PROJECT VIEW - WORK ENVIRONMENT
THE GENOS FRAMEWORK

POWER OF IPSE = TOOLS

POWER OF FRAMEWORK = INTEGRATION

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THE ENVIRONMENTAL MANAGERS RESPONSIBILITIES

1. ENFORCE COMPANY STANDARDS

2. DEFINE TOOLS/TOOLSETS AND ALLOCATE TO USERS

3. CONTROL SYSTEM ACCESS

4. ENSURE ADHERENCE TO PROJECT STRUCTURE

5. MAINTAIN THE PROJECT ENVIRONMENT

6. TRACK SYSTEM USAGE

7. DEAL WITH ENVIRONMENT PROBLEMS AND MODIFICATIONS
WHO IS IT FOR?

SOFTWARE DEVELOPERS
PROJECT LEADERS
PROJECT MANAGERS
QUALITY ASSURANCE
CONFIGURATION MANAGEMENT
ETC.

EVERYONE CONCERNED WITH THE PROJECT
3 FUNDAMENTAL PRINCIPLES

The IPSE should provide an integrated set of tools to support all the activities of a software project.

The working environment provided by the IPSE should be object-oriented; providing support for the production or modification of objects which are input to and output from all the software development tasks.

The working environment provided by the IPSE should support the relationships and responsibilities between the staff working on the tasks.

A GENERALISED IPSE ARCHITECTURE
SOFTWARE DEVELOPMENT METHODOLOGY

INTERACTION THROUGHOUT LIFECYCLE