

Software Documentation and Presentations

CS 577a

2002

Software Documentation and Presentations

- Architecture Review Board (ARB) Meetings
- Need for good software documentation
- The six basic software document categories
 - Plans
 - Specifications
 - Manuals
 - Progress Reports
 - Recommendations
 - Announcements
- Software Documentation and Presentation Principles
 - Contract Theory
 - Goal-Oriented
 - Anticipatory
 - Structured
 - Life Cycle
- Pitfalls, or lessons to unlearn

LCO ARB Session Outline

(x,y): (presentation time, total time)

(10,15) OCD. System purpose; current system and deficiencies; proposed new system; system boundary; desired capabilities and goals; top-level scenarios

(10,15) Prototype. Most significant capabilities

(5,10) Requirements. Most significant requirements

(5,10) Architecture. Top-level physical and logical architecture; status of COTS/reuse choices

(5,10) Life Cycle plan. Life cycle strategy; key stakeholder responsibilities

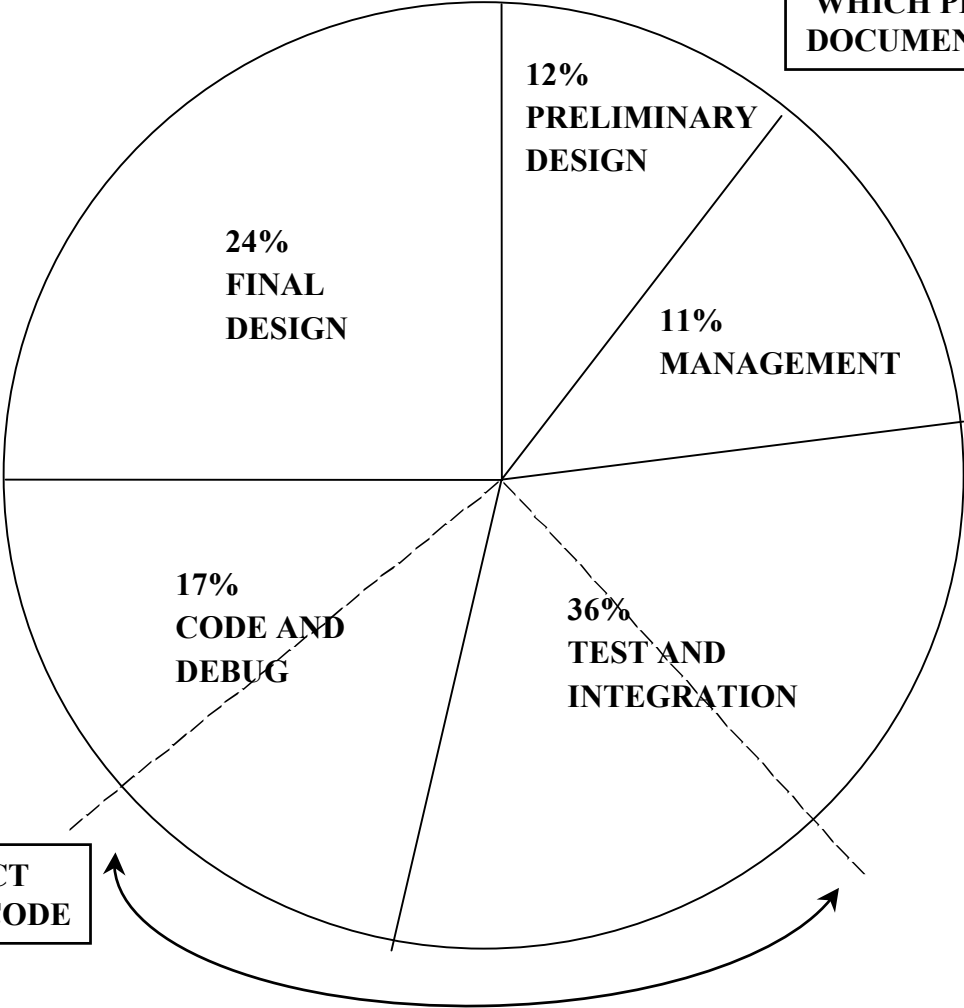
(5,10) Feasibility Rationale. Business case; major risks; general discussion

(0,5) Things done right; issues to address (Instructor)

Plan on 2 minutes per briefing chart, except title

Software Products are Largely Documentation and Word Processing

PORTION OF PROJECT WHICH PRODUCES DOCUMENTATION



PORTION OF PROJECT WHICH PRODUCES CODE

The Six Basic Software Document Categories

Category	Producer	Consumer	Goal/Objective	Types
Plan	Devel. Team	Devel. Team, Customer	Specify Project's Functions, Responsibilities, Schedules, Resources	Life-cycle, development, conversion, install, O+M, V+V, Review
Specification	Analysts	Devel. Team, Customer, User, Interfacers, Maintainers	Specify products to be developed	OPS. Concept Requirements Design
Manual	Devel. Team	Devel. Team, Maintainers	Specify/Explain how to work with product	User's, Operator's, Maintenance, Standards, CM,..
Progress Report	Devel. Team	Managers, Customer	Report Progress	Status Report Cost/Sched/ Progress, Completion Report (written or Verbal)

The Six Basic Software Document Categories - II

Category	Producer	Consumer	Goal/Objective	Types
5. Recommendation	Anyone	Anyone	Identify Issue; formulate & justify recommendation	Study Memo Letter Briefing
6. Announcement	Anyone	Anyone	Provide information	Org., Facility, Meeting, Schedule, ...

Contract Theory of Writing

1. Writer tells reader the significance of his writing
2. Reader commits to read message for as long as he is convinced that
 - the message is significant to him
 - the writer recognizes the reader's perspective

Implications for Writer

1. Must understand reader's perspective
2. Must keep reader convinced that the message is worth his time
3. Must provide clear statement of message
4. Must provide clear sequence of evidence which supports message

A similar theory applies to verbal presentations

Reader Frame of Reference: A Conservative Assessment

Reader Characteristic	Manager	Customer	Analyst	Programmer	User Manager	User Operator
Impatience	***	***	**	**	***	**
Concern/Familiarity with User Objectives	**	**	**	*	***	**
Concern/Familiarity with User Operations Details	*	*	**	*	**	***
Concern/Familiarity with S/W Technology	**	*	***	***	*	
General Education Background	**	**	**	*	**	
Concrete Orientation (vs. Abstract)	***	***	**	*	***	***

*** = Very Strong

* = Moderate

** = Strong

(empty) = Low

Goal Oriented Presentations

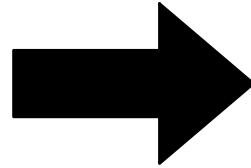
- Determine Goal
 - What message do you wish to get across?
- Determine Starting Point
 - What can you assume about readers/listeners
- Determine, obtain required information
 - Limited to what you need to achieve goal
- Organize information into goal-oriented sequence
 - Sequence which best supports desired message
- Iterate message and information sequence
 - As you discover new info and relationships
- V+V the presentation with respect to expected reader/listener
 - and iterate as necessary

Goal Oriented Presentations: Recommendations

Starting Point:

Unconvinced

Decisionmakers



Goal:

Convinced

Decisionmakers

- Unaware of many things you know
 - Technology
 - Oper. Details
 - Aware of many things you don't know
 - Other Resource Demands
 - Political IOU's
 - Wants to achieve successes and avoid failures
 - Busy, Impatient
- Understand issues in their context
 - Feel they have enough info. to act
 - See that your recommendation is better than alternatives
 - Benefits > Costs
 - Acceptable risks
 - Worth bothering about

Presentation Techniques

- Acknowledge Reader's Perspective
- Be Brief
 - The Fog Index
- Don't Wander
- Be Specific
- Be Human

Acknowledge Reader's Perspective

- NOT - “We should adopt Structured Structures because it’s the most elegant approach ever devised by Computer Science.”
- BUT - “Adopting Structured Structures will initially cost us \$50,000 plus about 20 man weeks of trainees’ time. But experience elsewhere has shown it will significantly improve programmer morale and improve our software maintenance productivity by at least 10% (or about \$100,000/year)

Be Brief

FOG Index: $F=0.4 (L+P)$

L = ave. no. of words per sentence

P = ave. no. of ≥ 3 syllable words per 100 words

73 words. FOG Index = 27

Extensive investigations of the operational deficiencies were performed by the representatives of several organizations, resulting in a preliminary determination that the problem was indeed significant, that it's most probable provenance was the DBMS, and that Bill Jones was the most reliable person who might effect an appropriate operational solution After examining the symptoms, and considering the possible sources of the operational deficiencies, Jones indicated that an acceptable solution might be forthcoming by Friday.

17 words. FOG Index = 6

— We have a significant problem in the DBMS. Bill Jones predicts that he can fix it by Friday.

Don't Wander

Suppose you put the following in your study report on an improved software cost estimation capability:

“Another issue identified in the interviews is the need for an improved information system to support proposals. This might include capabilities for manuscripts preparation, skills inventory, a resume and past-project data base, and integrated pricing and scheduling.”

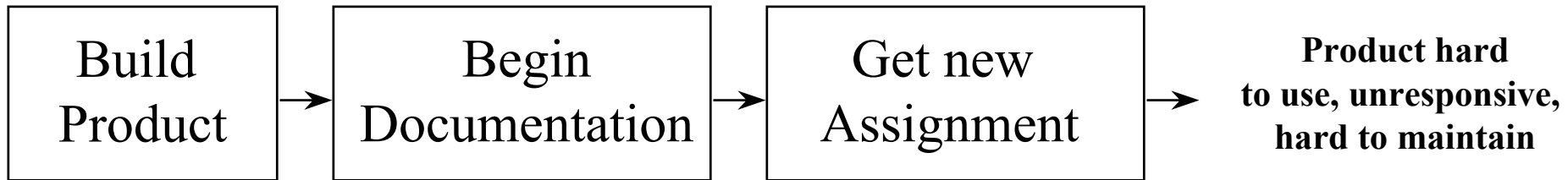
What do you think might happen to your readers or listeners?

Presentation V+V: Anticipate Possible Negative Reactions

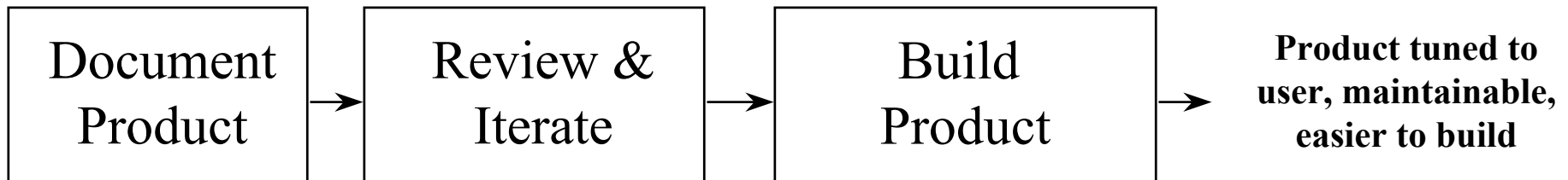
1. I didn't even consider it. The author didn't
 - make it clear what he was presenting and why
 - understand how marketing works
 - have any solutions to recommend
 - look at the alternatives we're already considering
2. The problem is important, but this presentation
 - kept drifting off the subject
 - left me more confused than I was before
 - turned me off
 - didn't convince me that the savings would be real ones
 - didn't convince me that his recommendation is superior to the others
3. That's an excellent solution, but
 - I don't see what the problem is
 - We don't have the time (people,) to implement it
 - Fixing it is Sam's department
 - It's something we can easily postpone

Anticipatory Documentation

Traditional Approach



Anticipatory Documentation



Structured, Life Cycle Documentation

- Modular
 - Information Hiding
 - Paragraph Structure
- Terminology Control
- Collocated Program and Documentation
- Cross Referencing
- Index

Pitfalls: Lessons to Be Unlearned

- Writing For All Time
 - Drafts
 - Updates
- Chronological Writing
 - Instead of goal oriented
- Colorful Writing
 - “This terminal has been designed to enhance the salesman’s efficiency. After pressing ENTER, the user has several options to... If problems arise, the agent can... The operator then terminates the transaction with the END key”
- Using the Unmodified Golden Rule

ARB Chartsmanship

- Don't repeat the MBASE Guidelines
- Don't sweat the small stuff
- Use audience-based terminology
- Assume 2 minutes presentation time per chart
 - After timed dry run practice
- Don't repeat previous speakers' material
 - OK to refer to it
- Do dry runs with outsider audience