We have not known thee as we ought

We have not known Thee as we ought, Nor learned Thy wisdom, grace and power; The things of earth have filled our thought, And trifles of the passing hour. Lord, give us light Thy truth to see, And make us wise in knowing Thee.

We have not feared Thee as we ought, Nor bowed beneath Thine awful eye, Nor guarded deed and word and thought, Remembering that God was nigh. Lord, give us faith to know Thee near, And grant the grace of holy fear.



 Image: Constrained state
 Image: Constrained state

 Image: Constrained state
 Image: Constrained state

Team Strike Force remakes the classic hymn on the Rain City Hymnal Volume 1 cd.

mas B. Pollock, in Supplemental mns Ancient and Modern, 1889.

y's SURREY, <u>Henry Carey</u>, circa 1732; om The English Hymnal (London: tersity Press, 1906), number 491 (

We have not loved Thee as we ought, Nor cared that we are loved by Thee; Thy presence we have coldly sought, And feebly longed Thy face to see. Lord, give a pure and loving heart To feel and know the love Thou ar

1849 (🞜 📆 🟭)

ave access to a better photo of Pollock could put online, please <u>click here</u>.



We have not served Thee as we ought,

Alas, the duties left undone, The work with little fervor wrought, The battles lost or scarcely won! Lord, give the zeal, and give the might, For Thee to toil, for Thee to fight.

When shall we know Thee as we ought, And fear and love and serve aright? When shall we, out of trial brought, Be perfect in the land of light? Lord, may we day by day prepare To see Thy face and serve Thee there.

Software Project Management Software Engineering CS 130 Donald J. Patterson

Content adapted from Essentials of Software Engineering 3rd edition by Tsui, Karam, Bernal Jones and Bartlett Learning

Project Management "Process"

- Why do we need project management?
- Why can't we just follow one of the software development process and be left alone?

Project Management "Process"

- How many developers do you need?
- What skills do they need?
- How should they be arranged?
- Who is going to be making sure that adequate progress is being made?

Who is going to shield the developers from the rest of the world?

Project Management "Process"

• The challenge:



Project Management "Process"

- All projects small and large need project management because all projects need some degree of POMA:
 - Planning
 - Organizing
 - Monitoring of status
 - Adjustment

Software Project Management (POMA) Process



Software Project Management (POMA) Process

• Software Project Management is its own process

- Different from the Software Engineering Process
 - focussed on generating high-quality code

- Different from code lifecycle
 - Very in the weeds processing associated with the starting and stopping of processes





Goals of Software Project Management

- End results of the project satisfy the customer's needs
- All the desired and the needed product/project attributes (quality, security, productivity, cost, schedule, etc.) are met

 Team members are operating effectively and at a high level of morale

 Required tools and other resources are made available and are effectively utilized

Planning (POMA)

 The 1st step of project planning is to understand the requirements of the project.

• This step itself may be a mini-project

• Figuring out who pays for this is a tricky question.



Planning (POMA)

- Then the following 4 steps are included in the rest of project planning:
 - Perform estimation of
 - the work effort,
 - the schedule, and
 - the needed resources
 - Clearly define and establish measurable 'goals' for the project
 - Determine the project resource allocations of
 - people,
 - process,
 - tools, and
 - facilities
 - Identify and analyze the project risks

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Project "goals" need to be measurable

- "High Quality"
 - needs to be specified so that it can be measured
 - "The product quality goal is that 98% of the listed functional requirements in the approved requirements specification document are all tested and have no known problems at the product release time. The remaining 2% of the listed functional requirements are also all tested and have no known severity 1 problems at the product release time. Severity 1 problems are those that cause the function not to be completed and there is no manual work-around to complete the required function."

Project "goals" need to be measurable

- "on-time"
 - needs to be specified so that it can be measured

Agile Project Management

Never plan too far out because the world is too dynamic

Personas



Dorte is 53 years old and works as a secretary in her husband's plumbing business in the suburbs of Copenhagen. There are 5-6 assistants and apprentices in the company.



Organizing (POMA)

- Once a project plan is formulated or partially formulated, organizing may start
 - Organization structure needs to be designed
 - Human resource hiring needs to start and be completed along with acquisition of other resources
 - Any required education and training have to be completed
 - Mechanisms for tracking must be established
 - Risk tracking and mitigation
 - Project goals (schedule, cost, market place, etc.)



Comparing and Pairing <u>Planning</u> and <u>Organizing</u> Activities

Planning	Organizing
Project content and deliverables (requirements)	
Project tasks and schedule —	Set up tracking mechanisms of tasks and schedules
Project resources	Acquire, hire and prepare resources such as people, tools and processes
Project goals and measurement	Establish mechanism to measure and track the goals
Project risks —	Establish mechanism to list, track, and assign risk mitigation tasks



Monitoring (PO<u>M</u>A)

- Once the project is organized and set into motion, there still needs to be regular tracking to ensure that it is headed in the right direction. (Projects can not be left to coast along by itself.)
- 3 main components of project monitoring:
 - 1. Project status information collection
 - 2. Analysis and evaluation of collected information
 - 3. Presentation and communication of the project status

Collecting information

- Meetings
 - Regular meetings
 - "Daily SCRUM"
 - Weekly progress report meetings
 - Management-by-walking
 - Software and information tools

• How can you do this with remote teams?

TASK MARABUMUT TREZIO PINOTAL TRACKER REMINE

· HOFFICE PROTOCOL





Different ways of Visualization/Reporting of Information and Project Status



Adjusting (POMA)

- It is highly unlikely that a software project progresses with no problem. As soon as the project status suggests potential problem, we must <u>not be afraid to make changes</u>.
- 3 main areas of adjustments are (or combinations of) :
 - Resources
 - Schedule
 - Project content



is not the same as

- Software Development Process or
- Software Life Cycle

The techniques of doing POMA

Requires social skills

Requires technical knowledge

Some Project Management Techniques

Planning : Project <u>Effort Estimation</u>

- General view:
 - Units of effort = a + b (size)^c + Σ(factors) where a, b, and c set of estimated constants, size is the estimated size of the project and factors are additional factors of concern
- Most of the estimating techniques use some form of this general "formula"
 - <u>COCOMO I and COCOMO II</u> models
 - <u>Function Point model</u>

___pages 354-364 of your textbook

Effort Estimation

- a, is like overhead
 - fixed cost
- size, is a measure of scale of project, maybe LOC
- b translates size into the correct unit
- c allows size to affect outcome non-linearly

Some Project Management Techniques (cont.)

- Planning and Organizing: <u>Work Breakdown</u> <u>Structure</u>
 - Estimation of the complete project by
 - Deliverables
 - <u>Tasks required</u> to develop the deliverables
 - <u>Resources</u> required to perform the tasks

Work Breakdown Structure (WBS) Steps

- 1. Examine and determine the *external deliverables* of the project.
- 2. Identify the steps and tasks required to produce each of the deliverables, including the tasks that are required to produce any intermediate internal deliverables
- 3. Sequence the tasks, showing any potential for parallelism
- 4. Provide an estimate size of each of the tasks
- 5. Provide an *estimate of the productivity of the personnel* that is most likely to be assigned to each of the tasks
- 6. Calculate the time required to accomplish each task
- 7. For each of the external deliverable, *lay out the timeline* of all the tasks needed to produce that deliverable and label the resources that will be assigned to the tasks.



Example of: <u>Task Network</u> with Estimated Time Units



End result of WBS = Initial Schedule Estimate

WESTMONT COMPUTER SCIENCE

