

PROJECT MANAGEMENT FOR SCIENTISTS

TYPICAL PROJECT PROBLEMS

CHRISTOPH U. KELLER, C.U.KELLER@UU.NL

STERREKUNDIG INSTITUUT UTRECHT

UTRECHT UNIVERSITY

WWW.ASTRO.UU.NL/~KELLER

OUTLINE

- Responsibility – Authority Mismatch
- Disaster Recovery
- Competition
- Externally Driven Delays
- Impossible Dream
- Firefighting
- Managing Volunteers
- Project Success Factors

A TYPICAL PROBLEM





INTRODUCTION

- Computers do not manage projects
- Estimates are not self-fulfilling prophecies
- Luck does not make a successful project
- Project management offers tools
- Skilled human being must use these tools
- Every project has problems

RESPONSIBILITY VS. AUTHORITY

- Must rely on people without authority over them
- Project charter: shows your authority
- Statement of work: provides background
- Communication plan: 2-way communication
- Small work packages, clear completion criteria
- Network diagram: how they fit in
- Project status meetings: keep them informed
- Sponsor relationship: help in case of problems

DISASTER RECOVERY

- Project is out of bounds, needs turn-around
- Statement of work: prioritize remaining scope, clarify penalties for missing schedule, budget
- Project plan: determine best possible schedule with infinite resources; negotiate more resources, time, money, less scope; resist unrealistic schedules, budgets; discipline
- Work package estimates: use actual performance to create realistic estimates together with team; don't frustrate people more by ignoring their experience
- Project status meetings: focus on completing near-term tasks; visualize progress, celebrate small victories

FIXED SCHEDULE

- Meeting a deadline is suddenly crucial constraint
- Statement of work: agreements on authority, decision process, responsibilities to avoid organizational battles
- Fixed-phase estimating: no detailed plan for whole project, but review often, reevaluate scope vs schedule and available resources at end of each phase
- Project plan: detailed plan for every phase; identify concurrent task opportunities; compress schedule by adding people, but this might add to costs
- Completion criteria: quality checks for each phase, do it right the first time
- Project status meetings: clear responsibilities, rigorous tracking of schedule progress; create culture of schedule accountability; celebrate victories along the way

EXTERNALLY INDUCED DELAY

- External parties delay project
- Schedule, Gantt chart, network diagram: look for other work packages to work on, assess impact of delay, demonstrate effects to delaying party
- Change management: determine cost and schedule impacts of delay; document impacts and reason for delay; bring to attention of delaying party and stakeholders; add 'delay' task to schedule, budget

IMPOSSIBLE DREAM

- **Deadline and / or budget are impossible**
- Statement of work: clear project goals, scope, deliverables; make sure scope and deliverables are necessary to achieve goal, learn about cost and schedule penalties
- Project plan: develop 3 options with different scope-cost-schedule priorities; recommend option closest to sponsor's priorities; determine maximum, useful number of people on project; determine schedule adjustments resulting in biggest cost reduction, compress most cost-effective tasks
- Risk management: risks will affect cost and schedule; risk assessment on high level (big picture) and detailed level; take steps to mitigate risks; monitor and watch for new risks
- Status reports: change stakeholder's expectations; report actual progress, diligence of team to reach goals; raise alarm if actual progress indicates cost / schedule problems

FIREFIGHTING

- There is no time for project management, organization, planning
- Get organized before the fire starts
- Systematic use of project management approaches will increase ability to react quickly to any situation
- Be ready to define the project, identify risks, make a plan

MANAGING VOLUNTEERS

- **Clear leader, but no authority over anyone**
- Statement of work: build enthusiasm and common vision on goals and deliverables
- Small tasks, clear completion criteria: make it easy to succeed by giving clear directions, limits
- Project plan: be extremely organized, aware of critical path, have enough slack; volunteers are busy people
- Communication plan: stay in touch with everyone with little effort, few meetings; volunteers want to get things done
- Status meetings: energize group, take decisions

PROJECT SUCCESS FACTORS

1. Agreement among project team and sponsor on goals of project
2. Plan showing overall path with clear responsibilities against which progress is measured
3. Constant, effective communication between everyone involved in project
4. Controlled scope
5. Management/sponsor support