PROJECT MANAGEMENT FOR SCIENTISTS

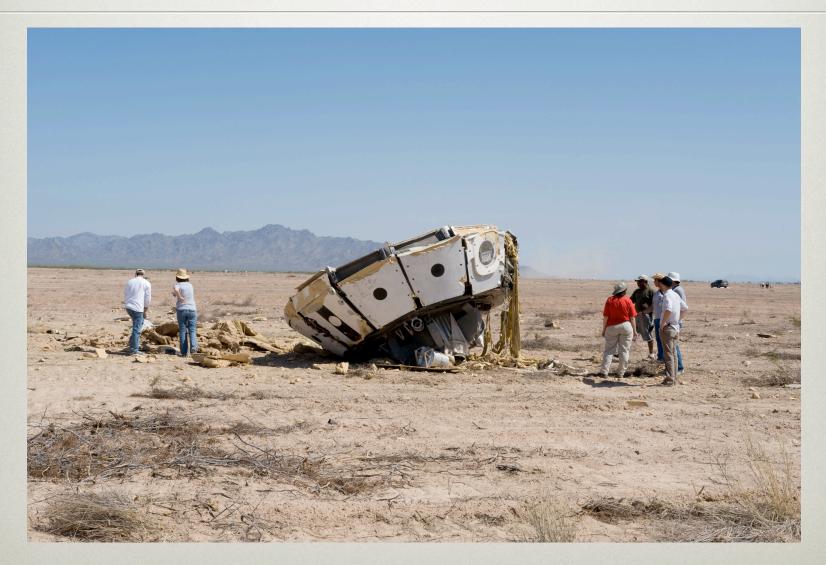
TYPICAL PROJECT PROBLEMS

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



Christoph U. Keller, C.U.Keller@uu.nl

Project Management for Scientists 2011: Typical Project Problems



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 nearterm 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-costschedule 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