

# MANAGING ADA PROJECTS: THE PEOPLE ISSUES

presented at

TRI-Ada '88  
Charleston, WV  
26 October 1988

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“There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things.”

Machiavelli.

## Topics

- Dealing with Upper Management
- Dealing with Contracting Agencies, Users, and IV&V Contractors
- Dealing with Developers

## Dealing with Upper Management

- Upper management Ada savvy and support is critical:
  - Corporate Ada technology transition.
  - Individual Ada projects.
- Corporate and project management typically exhibit a very disturbing lack of awareness of the important impacts of Ada.
- Ada and Ada-oriented software development methods are:
  - New and unfamiliar.
  - Looked on with suspicion.
- Point out:
  - Dangers of hesitating (or resisting) during a major technology transition (e.g., vacuum tubes to transistors).
  - Customer is demanding the change.

- Mention the advances and investments made by the competition:

- General Electric Training Lab.

- Unisys Defense Systems \$10 million Ada Program Office.

- Use Ada cost models to provide a cost/benefit analysis.
- Do not oversell.
- Show the projected impact of warranties and fixed-price contracts, especially if rework is a major source of income.
- Practical information should be presented in terms of market, financial impact, capital investment, personnel needs, of developing software, risks and means of managing those risks, etc.
- Modify upper management's expectations regarding project phasing, milestones, etc.
- Discuss personal benefits and risks with individual managers.

## Dealing with Contracting Agencies,

### Users, and IV&V Contractors

- Contracting agency, user, and IV&V contractor understanding and support for Ada is critical to project success.
- Yet contracting agency, user, and IV&V contractor personnel typically exhibit a very disturbing lack of awareness of the important impacts of Ada.
- "With rare exceptions, the kind of people who procure and administer contracts are not the kind of people who can invent new ways of doing things, or even people who can understand and appreciate a new way of doing things." Dr. Yale Jay Lubkin, Electronic Warfare Editor of "Defense Science and Electronics"
- Ada and Ada-oriented software development methods are new and may be looked on with suspicion.
- During a technology transition, the nature of IV&V tends to ensure that the IV&V contractor will lag technically behind the state-of-the-art contractor (like a sea anchor behind a ship).

- In order to facilitate productive formal reviews:
  - Offer free training to contracting agency, relevant user, and IV&V personnel.
  - Try to convince the contracting agency to make this training mandatory on their IV&V contractor.
- Work closely with the contracting agency.
- Be prepared.
  - Know your software development method by the time you write your proposal.
  - Know all relevant policy and mandates (e.g., DODD 3405.2) on the contracting agency.
  - Know all relevant standards (e.g., DOD-STD-2167) on your developers.
  - Get relevant standards tailored to suit project needs!
- When necessary, justify your requests for deviations and tailoring with the:
  - Acquisition Streamlining Directive (DODD 5000.43).
  - Recommendations of industry associations and professional societies.
- Make the Software Development Plan and Software Standards and Procedures Manual complete and specific (avoid boilerplate).
- Ensure that the contracting agency understands the:
  - Benefits of your proposed innovation.
  - Need to modify their expectations regarding project phasing, milestones, etc.

## Dealing with Developers

- Be a leader (to new technical frontiers) and not merely an administrator.
- Resistance to Ada ways of developing software is often due to ignorance and is a good clue to the lack of training, experience, and aptitude of your staff.
- Adequately (scope and depth) train both your staff and yourself.
- Use objective tests (e.g., the Ada Proficiency Test by Psychometrics, Inc.) to test competency.
- Seek expert advice and use the experience of others to develop the project-specific Ada-oriented methods, standards, and procedures.
- Publicly impose these methods, standards, and procedures so that your staff will clearly know what is expected of them.
  
- Make it obvious to your staff (both technical managers and developers) that you support and will enforce the project methods, standards, and procedures.
- Make it clear that the methods, standards, and procedures are:
  - Subject to CONTROLLED change, but
  - May NOT be ignored.
- Build team spirit and encourage cooperation.
- Promote objective and egoless reporting.
- Once a technical disagreement has been settled, enforce it.

- **Ensure good communication among developers and between groups:**
  - Request and provide a means of staff input.
  - Spread success stories.
  - Keep developers informed.
  - Provide the big picture.
  - Ensure that lessons learned are captured and published.
  - Hold meetings to let developers be heard.
  - Set up a project newsletter or bulletin board.
  
- **Ensure that your technical managers are TECHNICALLY competent and will enforce your technical direction.**
- **Keep track of your developers and use QA as your watchdog.**
- **Identify the conservative individuals who will undermine your new direction.**
- **Check for people backfilling documentation to "comply with" project standards and procedures.**
- **Watch out for new (inexperienced) developers being confused by experienced conservative developers.**
- **Get rid of (or isolate) the trouble makers.**

Project politics, sociology, and psychology often have larger negative impacts on project success than technical problems.

“To get the bad customs of a country changed and the new ones, though better, introduced, it is necessary to first remove the prejudices of the people, enlighten their ignorance, and convince them that their interests will be promoted by the proposed changes; and this is not the work of a day.”

Ben Franklin 1781.

“This time, like all times, is a very good one if we but know what to do with it.”

Emerson

