The use of written guidelines for application development contributes to a better product, increased productivity, and better communication with both management and users.

Would you believe that the most powerful development productivity technique you can employ is to use standards for application development? Standards, or guidelines, are a written, usable formulation of experience—successful experience. Their use overcomes a common problem: Most project experience is lost, or at best handed down by word of mouth or individual behavior. Standards are descriptions of what “products” are needed, how they should be built, and what they should look like when completed. Standards can be descriptions of the best set of procedures to follow during the product’s development. Written standards are a consistent, effective means of communication among the project team, users, and management.

Without standards, the target is often blurred and difficult to hit—

"Would you tell me please, which way I ought to go from here?"
"That depends a good deal on where you want to get to," said the cat.
"I don’t much care where—," said Alice.
"Then it doesn’t matter which way you go," said the cat.
LEWIS CARROLL

With standards, you will know where you’re going, and you will be able to recognize your destination when you’ve arrived.

Consider the turkey...

Meleagris gallopavo, grand native bird of our land, center of attraction at our holiday table—sandwiches for the next week, maybe soup, too. The turkey really gives his all on every festive occasion—a marvelous performer.

Why is the turkey so good each time and so consistent from year to year and place to place? Because there are standard ways to cook turkeys. Proven methods with lists of instructions for converting the raw bird into a golden brown mouthwatering delight. Call them recipes if you like, but they really are standards, and written ones at that. Every facet of the fowl deed is explained in detail. But that doesn’t mean you can’t add your own special seasoning. What it does mean is that if you follow the standard directions you will complete this culinary project in grand style—and chances are you won’t burn your bird! Let me illustrate:

- Estimating. “A 12-pound turkey feeds 16 people.” I have 17 people coming for dinner. Let’s see, that’s ¾ lb. per person; I need a 12.75 lb. bird.
- Scheduling. “Preheat time is 6 minutes + 15 minutes on a side + 20 minutes per pound.” Let’s see, that’s 12.75 x 20 = 225 minutes + 6 + 30 = 291 minutes. Four hours and 51 minutes ought to do it!
- Describing the major tasks. “Season a stuffed turkey with salt, place bird on its side in a roasting pan fitted with a rack. Cook in a preheated (425°F.) oven 15 minutes, then turn on the other side and cook for 15 minutes longer. Reduce to moderate heat (375°F.) and continue roasting... turn the bird from side to side and baste often with...”
- Completion criteria. “Place the bird on its back for the last 15 minutes. Pierce the thigh for doneness. If the juice that runs out is clear without a tinge of pink, the bird is done!”

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Followed faithfully, and with calibrated equipment, this standard will bring you in on time, on plan, and with the ultimate user satisfaction (pass the turkey key again, please). You will also find that your turkey recipe calls for other standards—for example, for the construction of essentials like stuffing . . . and for preparing the bird (so you won't start out cooking too early—like before the feathers are removed!). Consistent application of successful experience time after time. That's what standards can do for you.

Out of the kitchen and into the frying pan

Many of us have been involved with enough turkeys to last a lifetime and suspect that there might be a better way to develop systems. You can clean up a mess in the kitchen in a few minutes, but cleaning up a mess of a project takes considerably longer. Let's look at some examples of standards as they apply to application development.

There are two types of standards used in development: technical standards, such as structured programming in Cobol and data base design guidelines; and project planning and management standards, such as design phase guidelines and project tracking and review guidelines. Most of what follows is devoted to the management standards. The terms “standards” and “guidelines” are used interchangeably.

Project planning and management standards are aimed at improving the degree of communication among users, developers, and management. Such standards grow out of successful, documented experience and a commitment by management to maintain a successful environment.

A standard for a system design effort might look like this:

**Design phase guidelines:**

- **Section 1.** Describes the purpose of the design phase.
- **Section 2.** Lists the work-products of the phase, and the documentation required.
- **Section 3.** Lists the major tasks to be performed during the phase.
- **Section 4.** Lists the level of detail required for the design document, such as input/output and data base descriptions. Describes what each section of the design document is to contain.
- **Section 5.** Lists other standards to be used during the system design, such as recovery support, data security, audits and controls, HIPO documentation, and testing standards.
- **Section 6.** Lists the management plans to be used during the design process such as project tracking systems, change control procedures, and project reviews.
- **Section 7.** Describes the sign-offs and approvals that will be needed during and at the completion of the system design.
- **Section 8.** Defines the terms used in the system design standard.

So what will you achieve from a standard like this, assuming you adopt one? You will know, should you be given a design project to manage, what products will have to be developed—so will your manager and your users. You will know what the purpose and objectives of the design effort are—so will the users and management. All of you will be readily able to see if you are meeting the objectives. You will have a list of the major tasks to help you in the estimating and scheduling process. You will know in advance how the project has to be controlled and who has to approve the work. You will have ground rules for controlling change. You will know what detail is required so that you don't overproduce or fail to produce the appropriate level of detail for the next phase of the project. You will know what technical standards apply to this project. In short, you will be readily able to plan your project in detail and communicate its goals and activities to your people more clearly than ever before.

**A useful standards manual gathers no dust**

You will need a starter set of guidelines for application development. Most useful would be guidelines for:

- feasibility studies,
- project planning and estimating,
- system design,
- program development,
- system testing,
- conversion,
- project tracking, and
- change control.

Your standards development effort will invariably lead to the creation of a project or development “handbook” providing instructions, guidelines, procedures, and handy forms to be used for project management, and specifying the controls, reviews, and sign-offs required for each development phase. The “handbook” should be used in all development and maintenance efforts to provide guidance to the project manager and the project team in

- project planning,
- orienting project personnel,
- consistent project execution, and
- measuring how well projects are performed.

Where do you get standards? Many usable or adaptable standards are described in courses, books, and articles on project management. However, you can write standards yourself or have someone write them for you. Standards and procedures should be drafted carefully and reviewed by the people who will be using them. They should be tested for workability and revised, if necessary, until they are satisfactory. They should be distributed to the development staff and included as a part of new employee orientation.
Keeping development standards relevant and usable. Sad to say, many standards manuals and project handbooks are gathering dust. Despite a sincere effort to make them helpful, they are either rejected as unusable or simply ignored. Factors rendering them unusable include rapid obsolescence, wordiness, size, and complexity. They may be ignored simply because no one bothers to enforce their use. Finally, the existing standards may no longer fit current development needs.

Standards have to be kept up to date if they are to be usable. Management must be committed to their use and must make someone responsible for keeping them current.

Although this article is not intended to tell you how to write standards, I can offer a few hints...

Standards should be well written in plain English and easy to read. I don’t like standards that read like military specifications, in which section 1.1.2.3 references paragraph 3.2 of section 4.4.6.7.8! It’s pretty easy to get quickly turned off by an arbitrary four-inch-thick set of standards and procedures. Instructions should be crisp and easy to interpret—supported by examples where possible. The handbook should be well indexed since it will be used as a reference work; subjects or topics should be easy to find. Using magnetic cards or tape or otherwise automating can ensure easy handbook updating. There should also be a control list of who has the manual and a page version control with appropriate date and version indications.

Problem: Is there a time when you shouldn’t use standards?

“Uncertainty makes me nervous...
Certainty makes me unnervous.”

MARY HARTMAN
MARY HARTMAN

You probably should not consider using standards in your application development organization if the following conditions hold:

- You tried them once and they didn’t work.
- Your people won’t put up with standards.
- Everything you do is totally unique.
- You have absolutely nothing to learn from past experience.
- You don’t currently have any standards or guidelines.
- You don’t have time for this sort of thing.

Although these “reasons” may seem silly, they are uttered all too often in our business. The real purpose behind standards and guidelines, after all, is to help us do a better, more professional, more consistent job. With today’s costs it is no longer possible to put up with seat-of-the-pants development and the resulting overruns, missed schedules, and poor quality.

Nor are standards an affront to the DP profession—not by any means. In other fields such as law,
medical, and architecture, comprehensive guidelines cover everything from appendix removal to the standards for building design and construction. In fact, it is amazing how DP people have escaped all these years with so few standards and conventions. Nobody wants to submit to an inflexible and monotonous routine, but as one who has spent a considerable amount of time fretting over large development efforts, I sleep a lot better when I know I have a well-documented development process, a carefully constructed management system, and a set of comprehensive guidelines.

So how do standards affect your development productivity?

Let me recount the ways...

- Standards stop the writing of new control systems and procedures for each project.
- In testing and quality control, they lead to better tested products requiring less maintenance.
- They minimize orientation and training time.
- Standards foster a consistent application of labor-saving techniques and tools across a number of projects.
- In design work, they eliminate over-detail, minimize under-detail, and provide a solid basis for planning the next part of the project.
- They provide a definition of standard tasks which aid in the planning and estimating process, and they lead to consistency in the quality of the developed products.
- Standards provide a framework for keeping project completion data which can add to the reliability of future estimates.
- By eliminating the thrashing which usually occurs on the front end of a project, they reduce confusion in interpreting what work is to be done.
- They provide a well-defined path for the approval process, eliminating frustration and delay.
- They allow better control of projects done by outside vendors.
- Standards tell the user his role in the development process and show what resources he will have to supply.
- By contributing to a stable management system, they enable it to better measure improvements.
- They help project managers control change and eliminate rework and unnecessary/unplanned activities.
- Standards provide the environment and materials with which to train new project managers and leaders.
- Standards help pinpoint responsibilities during development.

You’ve heard the arguments—now do you believe? Yes, of course, you do. Standards can help your people work more productively. Standards contribute to a better product and improve communication with both management and users. Now, let’s get out there and begin planning our standards selections and development effort!

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