About Developing Software

As in other endeavors, the best way to proceed is with a plan. The best plans are detailed and checked and rechecked for completeness and accuracy.

Your plan begins with a statement of your business requirements: why you want a computer application (strategic or tactical), what you want it to do, your constraints (like time and money). The "statement" is likely to be several-to-many pages long. If it's not at least two pages, it is likely incomplete—you just have to think some more!

The second piece of the plan is the design. As magic has no place here, i.e., rabbits do not materialize out of hats, research is the activity that must precede the design activity which creates the design object. (This is where design is both a verb and a noun.) Research is how you discover, compare, and evaluate the many technologies. You choose a technology based on your requirements. In the design activity you work out how you will use the technology to achieve your goals: software, hardware, roles, procedures.

The third piece of your plan is a work plan to implement the design: tasks, schedule, staff, and money. It must be realistic with room for discovery and surprises. If the time frame and/or budget prove excessive, then the business requirements and/or design must be adjusted accordingly. Sometimes a long and/or expensive project is best divided into phases which can be developed sequentially and with more assurance of success.

WHAT CONSTITUTES A SUCCESSFUL IMPLEMENTATION?

All too often the answer is held to be (insisted to be)

- ✓ 100% of the design
- ✓ on-time
- ✓ on-budget.

And all too often this does not happen. Why? Technology projects are not a robotic manufacturing activity. They are more research and discovery, more explorative. Each piece of the plan is prone to human error. The active participation of people with relevant skills, experience, and subject matter knowledge is critical.

Writing a statement of business requirements is not an exercise in creative writing, but one needing skilled direction, imagination, even introspection, boldness.

Technology research is best done by people already experienced in similar technologies and possessing tenacity, patience, research skills, and some knowledge of the subject.

The best design creates a smoothly integrated whole of all the resources—people, software, and hardware—in a way that is pragmatic, easily understood and operated, and easy to troubleshoot. Design as a verb is both a skill and an art, and is best done by an experienced professional.

A truly successful implementation is one that

- ✓ verifies and/or corrects the original business requirements
- ✓ achieves the stated project goals
- ✓ advances the organization's goals
- ✓ enriches the participants professionally and personally
- ✓ achieves all this without a social or environmental cost.