

Clients below include military research bodies, insurance companies, banks, oil companies, manufacturers, and government agencies.  
Client identities and references are available, for appropriate purposes, on request.

### ***System development life cycle***

- Advised organizations in choosing a commercial life-cycle methodology by specifying criteria and weighting factors, contacting vendors, arranging presentations and demonstrations, and critically evaluating each product. Then planned and led projects to customize and install the chosen product, integrating the life-cycle methodology with local standards, techniques, and tools for project management, programming, and data administration.
- Under contract to a large oil company developed their new proprietary in-house life cycle methodology for the 1990's, which:
  - rejects the usual activity-driven emphasis in favor of a *results-driven* approach.
  - rejects the rigidity of the "waterfall model" in favor of the flexibility needed to take advantage of today's changing technologies.
  - closely integrates into mainstream projects such modern approaches as use of packaged application software products, use of C.A.S.E. tools, and interface-prototyping.
- Under contracts to the vendor, wrote these extensions to the commercial life-cycle methodology SPECTRUM, extending its viability in the marketplace for a decade:
  - Packaged application software product evaluation and selection.
  - Structured systems analysis
  - Data administration
  - Structured design and programming

### ***Project planning and control***

- Led status-audits of troubled or out-of-control huge projects, including:
  - an integrated manufacturing system (order processing, inventory management, factory scheduling) for a petrochemical company.
  - a huge claims processing system for a group health insurer.and either took over the leadership or prepared plans that brought the project under firm control and salvaged most of the company's investment.
- Planned and managed a number of successful data-center consolidation / conversion projects directly with user organizations or through facilities management (outsourcing) vendors.

### ***Software component reuse***

- Designed and helped implement for several organizations the infrastructure to support a central repository of reusable software components for application system development.
- Contributed over a 100 components (subroutines, functions, macro packages, object-oriented class definitions, etc.) to those libraries, ranging from low-level utility functions to highlevel "framework" modules.
- Designed and implemented date manipulation modules and standards for several organizations. Software developed by projects that complied with those organizations' standards did not experience the costly "year-2000 crisis".

### ***System design and development***

- Designed the framework of an early system for tracking navigational satellites. The system's highly modular structure permitted an unusually high degree of flexibility in replacing and recombining components, and served as a prototype for later scientific and business systems.
- Designed and directed development of a data analysis system for a major accreditation agency. The innovative macro generative approach saved the organization hundreds of labor in coding massive (7500 questions) questionnaires and allowed great future flexibility. Later reused this design in other applications, including a law firm's document indexing system for class-action litigation support.
- Developed a model for a *recorded performance* cataloging system with a number of unique features, combining elements of object-oriented, relational, and expert system technologies. (Originally a 1991 masters project at De Paul University, it's now being developed as a proprietary software product.)
- Project manager and consulting system architect for a major telephony application, utilizing client-server architecture with Oracle data base, C++ and Visual Basic. Delivered on time under fixed-price, fixed schedule contract.