

Software Engineering

Chartwell IT's development services provide the structure for creating custom or semi-custom software systems. These services span the tasks of detailed requirements gathering, solution design, software development, and production rollout.

Software development projects require the right mix of people, process and tools to create the desired solution. Collaboration is critically important, bringing stakeholders who define needs together with the developers who build the application. Our services are structured to satisfy and enhance each element of the project so that our team can build the right software for you, accurately and efficiently.

Overall Process

Chartwell IT's development methodology is divided into six functional segments. Each segment consists of its own set of activities and deliverables. The segments are:

- Requirements Definition
- Analysis
- Design
- Development
- System Testing
- Deployment

In most cases, the overall project plan is structured using an "iterative" approach, repeating each of the first five segments to achieve incremental goals. Each iteration acts as a checkpoint within the project, allowing the evolving application to be inspected and critiqued by team members, with the feedback being incorporated into subsequent iterations. The last iteration becomes the production release upon passing the QA phase. The iterative technique is widely published, and is well suited for medium to large projects.

Requirements Definition Segment

Chartwell IT utilizes *Use Cases* as the primary tool for capturing and communicating the business requirements of an application and system. *Use Cases* are structured documents with a defined life cycle that are written in plain language. They serve the entire project team through their clear and complete statement of what the application should do, including the myriad of "scenarios" encountered by application operators.

Chartwell IT project managers and system architects collaborate with Subject Matter Experts (SME) and Business Analysts (BA) to compose *Use Case Diagrams*, *Use Cases* and other supporting documents. These documents are the primary input into the design of the application and system. They fall under Chartwell IT's change control process to ensure revisions can be properly assessed, prioritized and implemented.

Analysis, Design and Development Segments

Chartwell IT system architects are assigned the responsibility for analyzing requirements and building a complete system design. Our preferred approach is to use Object Oriented Analysis and Design (OOAD) techniques and styles in producing the solution's structure, and organizing the final solution in a modular, multi-tiered architecture.

UML artifacts, data models and other documents are used to represent the various design segments, communicating the structure and component interrelations to the entire development group. Upon completing the design, the Chartwell IT project manager composes the project plan, organized in multiple development iterations when practical.

System Testing and Deployment Segments

System Test Plans are composed to fit the client's quality requirements. They are used to ensure the application meets the functional needs as defined in the overall requirements. The *System Test Plans* are used and maintained over the life of the product to guide the testing of subsequent releases.

In the final segment of the project, Chartwell IT configures the production servers with all of the components of the application. Chartwell IT can perform these tasks exclusively or in cooperation with the client's I.T. Operations staff (project dependent). Chartwell IT then provides direct post-deployment support as an escalation partner, and through monitoring production system performance.

Project Resources

Chartwell IT's technology professionals are skilled in the vital areas of software development, including project management, software architecture, a variety of development languages and package competencies, as well as other critical skills. These talents are augmented by extensive business experience for adding valuable insight above and beyond the pure technical aspects of a project.

Equipment and Infrastructure

Developers need the right tools to perform their job effectively and efficiently. Chartwell IT provides¹ properly configured workstations, development suites, utilities and design tools. Plus, we provide the server utilities and components that are necessary for most development projects, and configure these systems so that they have the data application environments necessary to support various project stages, such as development, quality assurance and deployment support.

Chartwell IT also provides remote access to development systems through our Virtual Private Network (VPN). This capability improves collaboration with client resources (e.g. subject matter experts, stakeholders, etc.) by allowing a secure means to review and examine pre-production software releases.

Note 1: This service is currently available for the following technologies:

- Application Servers – Microsoft® .NET™
- Database Servers – Microsoft SQL Server®
- Middleware Components – Microsoft Office SharePoint Server 2007®

Feature	Benefit
Use Case Centric Methodology	A proven and accepted method of capturing and managing requirements to ensure accurate software development
Object Oriented Design	Maximize ROI and quality through reusable, scalable software. Modularity simplifies enhancements to lower long-term costs.
Software Development Workstations	Chartwell IT provides systems with the necessary performance characteristics and tool sets to minimize client's capital expenditures and provide developers with the resources to do their job efficiently.
Development Servers	Chartwell IT provides and manages advanced technology components used during development to minimize client's capital expenditures and personnel overhead.
Source Control Library	Vital tool permits multi-person teams to co-develop software without interfering with each others changes, eliminating errors due to sharing conflicts and their inherent rework costs.
VPN Access to Development Servers	Access to internal servers and portals from remote locations without compromising security.

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