SPARX SYSTEMS

MODELING LOCATION BASED SERVICE DELIVERY SYSTEMS
ESRI Professional Services Team Delivers with Enterprise Architect

CHALLENGE

Limiting scope, and right sizing the system design (i.e. finding the right balance of detailed design) while defining and meeting customer requirements, modeling customer business problems and architecting a solution that met the client's functional, performance, and scalability needs.

WHY ENTERPRISE ARCHITECT

Enterprise Architect is a robust and mature object Modeling Tool. It delivers intuitive usability and is less cumbersome than some other tools while having a relatively low cost. ESRI has standardized on Enterprise Architect as the de facto object modeling tool for professional services projects.

BENEFIT

"Enterprise Architect has helped us in application modeling and provided us with a tool that allows us to model robust application architectures. It is an easy to use, flexible tool that doesn't 'get in the way' of our design sessions."

— Dave Lewis,
Project Manager,
ESRI Professional Services Group

Geographic information is the key enabler whether it be managing national security, the assets of a local Government, resource management or locating a restaurant of choice. Since 1969 Environmental Systems Research Institute (ESRI) a software development and services company has been providing Geographic Information System (GIS) software and geodatabase management applications. ESRI uses the name ArcGIS to refer to its suite of GIS software products, which operate on desktop, server, and mobile platforms. ArcGIS also includes developer products and web services. The ESRI Professional Services Group (EPS) provides support for ESRI while developing, integrating and deploying GIS systems for ESRI clients (Fortune 500s, Government Agencies). Included in the service offerings are business analysis and modeling and custom development required for key initiatives.

EPS was engaged to improve key business processes for a leader in home appliance retail and tools, lawn and garden, home electronics, and automotive repair and maintenance in the United States and Canada. Annually, this client delivers more than five million products to homes and makes 14 million service calls.

The client saw the need to replace the use of paper map books and manual data tracking with digital information tools using a simple yet effective interface. To realize this need EPS was approached to undertake the replacement (Project). EPS specializes in defining and meeting customer requirements, modeling customer business problems and architecting custom solutions that meet client functional, performance, and scalability needs. The EPS SST Project Team was led by Jim McKinney and included Dave Lewis, Project Manager and Buyang Cao, Lead Developer.

Because it had been successfully used on a variety of other projects, Sparx Systems Enterprise Architect was deployed as the project modeling tool. In addition, EPS has standardized on the ICONIX software modeling process. ICONIX provides EPS a lightweight software modeling process that takes a project from the requirements phase through design, development and testing, and provides traceability at each phase.

The Project Vision

The client's vision was to deploy a digital toolbox with a wireless workforce management system, library information system, mapping, and navigation and to make this technology available to field service technicians. For the project, the business problem being addressed was to develop a GIS-based navigation system and integrate it with the client work order management system. The goals were to:

- Reduce travel time and mileage per stop to improve productivity of the workforce.

- Automate support work.

- Enable technicians to become more profitable.

- Retain customers through improved service levels.

The solution would see increased customer satisfaction at a decreased delivery cost by allowing technicians to work more efficiently and have greater flexibility in their daily activities. Collaborating with client stakeholders, EPS' goal was to define requirements, design, implement, test, and deploy the solution while meeting the customer requirements on time and on budget and manage the project scope while finding the right balance of detailed design.

Sharing the Vision – from Requirements to Design

Enterprise Architect is a robust, mature object modeling tool and was selected as the modeling environment on this basis. Using Enterprise Architect and the ICONIX process, the EPS team undertook requirements analysis and performed a rigorous requirements-gathering process, which involved business process analysis and high-level use case identification. From the business processes and use cases, detailed requirements were derived and documented for each use case. Enterprise Architect supports improved requirements definition which are then outlined in a specification document and used as the blueprint for the design.

With a well defined requirements specification, the design phase transformed the requirements into a set of GIS software functions and a definition of integration points between the GIS system and the work order management system. The design team used Enterprise Architect to build a comprehensive design document directly from the requirements specification and this provided guidance for the developers throughout the development process. The design activity also included a data model and a system architecture design that provided the basis for hardware and software planning and acquisition to support planned GIS operations.

During the design phase, the EPS team leveraged Enterprise Architect's Rich-Text Format (RTF) generation capability. Since the majority of design artifacts were to be submitted in Microsoft Word format, this was an important feature. It allowed the team to automatically generate and then merge RTF files into Word documents for requirements, Use Case analysis, and detailed design. Commenting on the usefulness of this feature for submitting design deliverables, Dave Lewis recalled "EA made it very easy for us to take a working model in EA and create a design document in Word for someone who did not have EA installed."

A complete modeling solution for ESRI Professional Services

Being an early adopter of Enterprise Architect, ESRI has standardized on Enterprise Architect as the de facto object modeling tool for professional services projects. "The tool provides an intuitive user interface and is less cumbersome than some other tools, while having a low cost of ownership", noted Dave Lewis, EPS Project Manager. "Our initial thoughts for the tool were that it had an impressive feature set, and that it met the majority of our needs. Our clients generally like the tool and are usually receptive to adopting the tool for a given project."

The mobile application provides service technicians with repair information, such as schematic diagrams, for products. It also contains a GIS module provided by ESRI for mobile mapping and routing, which gives in-vehicle navigation capabilities to assist in finding service locations and minimizing travel time.

The software also allows a dispatching system for wirelessly adding and removing stops to a given driver's route. This is important as it provides the ability to manage service technician capacity dynamically throughout the day, allocating more work to technicians who have excess capacity and removing work from technicians who are behind schedule.

Enterprise Architect has helped the EPS project team in application modeling and supported the team with a tool that allows modeling and design of robust application architectures. "It is an easy to use flexible tool that doesn't 'get in the way' of design sessions", commented Dave Lewis.

Future Scope

ESRI Professional Services is currently developing an EPS standardized Enterprise Project Implementation Methodology, which will provide a process template for large enterprise implementations. Enterprise Architect will be the tool primarily used for requirements, use cases and design modeling. In addition, most of the technical leads in the group have adopted and standardized on Enterprise Architect as it meets the needs of Professional Services and its clients.

About ESRI Professional Services

Environmental Services Research Institute (ESRI) is a world leader in the application of GIS technology and the ESRI Professional Services group while providing support to the organization helps users move through the GIS implementation process quickly and efficiently through technology transfer. Services include implementation planning, system integration, database development, application development, and system operation. The ESRI Professional Services Group (EPS) provides support for ESRI while developing, integrating and deploying GIS systems for ESRI clients (Fortune 500s, Government Agencies). Included in the service offerings are business analysis and modeling and custom development required for key initiatives.

About ICONIX

ICONIX (www.iconixsw.com) offers a wide range of products and services with a focus on ICONIX Process; a streamlined approach to UML that reliably gets projects from use cases to code quickly and efficiently. ICONIX President Doug Rosenberg has authored 5 books on UML, including "Use Case Driven Object Modeling with UML--Theory and Practice" and "Agile Development with ICONIX Process".

ICONIX specializes in customized, hands-on, JumpStart Training. Available worldwide, these onsite, 5-day workshops allow students to use Enterprise Architect to model a real client project. "Hands-on EA for Power Users" is an ongoing series of two-day open enrollment public classes where students follow the design of a mapping project using Enterprise Architect.

Enterprise Architect for Power Users is a multimedia tutorial that provides over four hours of video tutorials covering a wide range of Enterprise Architect's features and capabilities.

About Sparx Systems

Sparx Systems (www.sparxsystems.com) specializes in high performance and scalable visual modeling tools for planning, designing and constructing software intensive systems.

With customers in industries ranging from aerospace and automotive engineering to finance, defense, government, entertainment and telecommunications, Sparx Systems is a leading vendor of innovative solutions based on the Unified Modeling Language (UML) and its related specifications. A Contributing Member of the Object Management Group (OMG), Sparx Systems is committed to realizing the potential of model-driven development based on open standards.

The company's flagship product, Enterprise Architect, has received numerous accolades since its commercial release in August, 2000. Now at version 7.5, Enterprise Architect is the design tool of choice for close to 200,000 registered users world-wide.