Case Study

OMNILINK's Sparx-powered upgrade transformed this regional software vendor into a solutions provider competing in global markets

CHALLENGE

Software vendor OMNILINK set themselves a tight deadline and a small FTE budget for a "generational" upgrading their flagship geospatial software – a challenge that became enormously more complicated when the development team realized there was no legacy source code, virtually no documentation and "ugly, messy" SQL databases.

WHY ENTERPRISE ARCHITECT?

The development team chose Sparx Systems Enterprise Architect for its full life-cycle support; for its ability to repeatedly design, model and test the repository without having to hand-write code at each step along with way; and for the built-in support for team collaboration during the development process.

BENEFIT

"I've used other modelling and development tools in the past and they were either way more expensive or they were clunky and awkward by comparison – or both."

Barry Steele, Chief Technical Officer
OMNILINK

When Barry Steele joined OMNILINK in 2013 he was handed a daunting mission: play a lead role in transforming the Australasian geospatial firm from a respected regional player to a global leader in its niche. This case study looks at how he met that challenge by using best-practice process and Sparx Systems' Enterprise Architect modelling software.

OMNILINK is an information-management and consulting-services company specialising in mapping on-site property assets like buildings, rooms and utility infrastructure. Most of its clients are senior managers responsible for physical plant at colleges, large schools, aged-care facilities and government organizations.
The company has its foundations as professional information managers specialising in geospatial techniques and applications. By 2013 it had developed several software tools to map on-site buildings, infrastructure and other physical artifacts – and record their locations and physical features in a database.
These software tools are licensed to clients – usually bundled with valueadded consulting and ongoing data-management services. The expansion-minded company is currently active in Australia, New Zealand and – just recently – Great Britain.

Their flagship product is a software tool called AssetWhere. AssetWhere provides clients with a user-friendly, map-based repository of campus sites, underground services, room and building details and other mappable assets. When fully implemented, the repository consolidates information previously stored in a variety of unconnected legacy formats – typically a mix ranging from digital files to detailed hard copy (photos, blueprints, maps) to a set of sticky-notes on a wall in the maintenance room.

Once this information is consolidated in AssetWhere it supports a variety of business-related on-site activities – including day-to-day operations, routine maintenance, design and planning, large renovation and upgrade projects and new construction.

The latest version of the software – a major upgrade released in 2014 – supports multi-platform HTML-5 delivery and optional cloud-based data. Steele led the development team responsible for this upgrade, which he characterized as a "generational leap."

"When I arrived at OMNILINK, AssetWhere was ripe for modernisation," said Steele. "The existing version still sold well because it did a good job, but it was desktop-bound. It had been created years earlier – before end-users started expecting desktop applications to extend to mobile platforms and pop-up on handhelds and tablets."

If the company wanted to keep growing its user base it needed to adapt to emerging expectations in the marketplace. This was new territory for the management team, which brought in Steele to help meet the challenge. He was recruited as the principal developer responsible for leading the AssetWhere upgrade.

Sparx software really turned out to be an ideal fit for the various challenges we faced. I've used other modelling and development tools in the past and they were way more expensive or they were clunky and awkward by comparison – or both."

As if expanding from desktop interface to cloud-capable, multi-platform software was not requirement enough, the new version also needed to accommodate software customization already in place at 80 key AssetWhere clients. The ability to customize had always been appreciated by end users, but this flexibility also added an extra burden when OMNILINK set out to upgrade the product.

Customization was not the only extraordinary issue facing the team during the upgrade: resources were strictly limited. Steele and one other full-time developer had just 12 months to finish. There was no room in this timetable for serious error – or even for "trial and error."

These constraints seemed even more formidable when they pulled back the curtain and discovered several major components in the software engine had no source code and little or no detailed technical documentation. They could not even get verbal advice from the original development team – that crew was long departed and not available for a consultation.

The technical challenges did not end with missing source code: it turned out the original product had been created with two separate development tools: Microsoft Visual Basic and a now-obsolete third-party GIS plug-in. As a consequence the same information was managed in two distinct, disconnected data-management systems.

None of these loose ends affected current end-users, but they did present the upgrade team with a very messy starting point. In response OMNILINK decided the only way to meet the challenge was to clean up the software legacy right at the start. "We felt the choice was either clean it all up at the very beginning or find ourselves constantly fixing smaller, unpredictable increments all the way through our upgrade," Steele said.

We moved from "seat-of-your-pants, white-board-based" software development to an agile, model driven development process.

"After the initial assessment, I made a judgement call: the most efficient approach was getting everything tidied up right at the beginning. Then we could start building momentum without constantly being pulled into side issues to do mop-up."
The other key front-end decision Steele made at this point was selecting the right software tool for initial cleanup. On joining the OMNILINK he discovered the company was already using his preferred development and modelling tool: Sparx Systems' Enterprise Architect. OMNILINK had been using the Sparx software for about 3 yrs, and Steele a decade.

Steele had been an early adopter of EA for systems modelling, code-generation, testing, and delivering business solutions. The development team stayed with Enterprise Architect as its principal tool for this project because experience had taught them it would be useful in a variety of ways throughout the life-cycle. Steele said Sparx' support for collaboration added to their productivity – not only during development, but also with the wider AssetWhere product team – including the consultants and marketing crew.

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The first step in the upgrade was using the Sparx software to reverse-engineer the existing databases – migrating legacy data from what Steele calls “the old, ugly SQL databases” into two interim databases with “SQL done properly.” When test models in Enterprise Architect confirmed the interim databases were totally clean and ready to export, he moved all the data into a single merged database.
With this newly created database in place the small development team now had a solid foundation for moving ahead with the project. Looking back at this first phase Steele now says Sparx Enterprise Architect enabled him to create the re-engineered database “in days instead of months.” They were able to move this quickly by using the Sparx software to repeatedly design, model, test and ultimately improve the RDBMS without the need to hand-write code..

”All the necessary modifications to the database and all the high-level objects were executed and modeled in Enterprise Architect”

“We didn’t take any wrong turns because Enterprise Architect enabled us to model and test all our turns in advance – before creating and finalizing the code,” he said. “No wrong turns means no hidden flaws discovered weeks later and that means no time wasted backtracking and re-coding. We just kept pushing ahead.”
The development team continued to use Enterprise Architect as it moved on to the core mission of the upgrade: creating a new version of AssetWhere that utilized HTML 5 and offered users multi-platform capacity and access to cloud-based data.

All the necessary modifications to the database and all the high-level objects were executed and modeled in Enterprise Architect and stored in the project repository created during the initial “cleanup.”

We’re encouraging clients to start using Sparx Enterprise Architect so we can exchange repository data and help them leverage new opportunities by understanding – and then re-engineering – their own data,”

The team also used the Business Analysis components of Enterprise Architect to develop all the Use Cases and Sequence Diagrams. It also used the Sparx Software to define the high level object model of the finished product. Virtually all the interactions in the new version were captured in Use Case Models created during the upgrade.

Steele said that throughout the redevelopment he systematically used the Sparx software to capture and itemize end-user needs and to “highlight the gap between where OMNILINK was and where we had the potential to be.”
The upgrade was a success, and Steele credits setting the right priorities and using the right tools. “Our initial decision to start off by re-engineering and consolidating the databases was the right one,” he said.
“And the Sparx software really turned out to be an ideal fit for the various challenges we faced. I’ve used other modelling and development tools in the past and they were either way more expensive or they were clunky and awkward by comparison – or both.”

Steele said OMNILINK’s success with the upgrade actually went beyond the original goals.
“We started off with a project to transform our flagship product and ended up triggering a much more profound transformation,” he said. “In the end we actually transformed the way we develop software at OMNILINK. We moved from “seat-of-your-pants, whiteboard-based” software development to an agile, model driven development process.

"I look at this broader transformation in our internal process as a bonus legacy from the product upgrade," he said. "We leveraged the Sparx tools to transform our approach to software development and ended up moving from twentieth century to twenty-first.

> "We're encouraging clients to start using Sparx Enterprise Architect"

"That broader transformation carries over to the way we work with our customer base – it's changed our corporate DNA and now it's part of our service commitment and part of our updated branding."

After the upgrade was completed, OMNILINK trained its consultants and other staff to use the Sparx software and UML modelling when they work directly with clients.

"We're encouraging clients to start using Sparx Enterprise Architect so we can exchange repository data and help them leverage new opportunities by understanding – and then re-engineering – their own data," he said.
"We've expanded our value proposition and repositioned ourselves from being software vendors to being solution providers."

All of which brings Steele back to his original mandate: to help OMNILINK equip itself to be a leader in the global marketplace. "We're now totally ready to take that on – we've equipped ourselves with transformed software and transformed consulting services, and we've transformed our internal software-development process.
"We can jump into international markets where buyers expect world class and know how to recognize world class. We're equipped to compete in those markets head to head with the best on the planet.

About Sparx Systems

Sparx Systems specializes in high performance and scalable visual modeling tools for the planning, design and construction of 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 12, Enterprise Architect is the design tool of choice for 350,000+ registered users world-wide.