



SYSTEM SIMULATIONS

Creating 24/7 innovative Web solutions takes more than glitzy technology. The following relates how System Simulations develops elegant functional designs, solves complex engineering problems, and establishes robust data interchange with enterprise legacy systems.

Web Solutions that Complement Your Learning Systems

By Bill Siino

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Introduction

Our clients frequently turn to us for help with Web solutions in areas that compliment our work with learning systems. After seeing our team deliver outstanding results, clients view us as partners and may ask for assistance in other areas of their business.

We limit our work in these non-core areas, only accepting assignments where we can add value through our understanding of client information systems or where we can apply engineering skills to solve a challenging problem.

With our engineering mindset and methods, we can build practically any Web solution. Over the years, we have developed many systems lying just outside our learning-management focus. These include a coaching support solution for a management training company and a survey solution for a pharmaceutical business. This paper highlights one on-line-publishing and print-on-demand system that we developed for a power-sports client.

Client Challenge

The client sought an Internet-based solution for online publishing of service manuals for its internal staff, dealers, and retail consumers as well as for retail and wholesale print-on-demand ordering and fulfillment.

The business faced three driving challenges:

1. Budget pressures to reduce the cost of distributing printed owner manuals and service manuals to dealerships
2. Lack of space for storing printed materials at dealerships and at headquarters
3. Dealership problems with missing manuals and supplementary printed materials

Our Solution

We took on this project for a couple of reasons. We had just finished implementing our Virtual Academy learning management system for this client, and had developed a collaborative relationship with their management team and IT group. Virtual Academy required a number of touch points with the client's enterprise systems and databases, so mechanisms for exchanging data were already in place.

Technology Challenge

The online publishing requirement posed interesting technical challenges. Many older documents, several hundred megabytes in size, were scanned from paper manuals onto PDF files. Without access to original source files, we could not convert these huge documents to a digital format that would allow automatic search capabilities provided by modern viewing tools like Adobe Acrobat.

More over, we needed to determine how to open and browse these pages over the Internet with acceptable search-and-response time for the average user (less than 5 seconds). The normal time to open such large PDF files would not acceptable.

To meet these requirements, our solution included an automated preprocessing of each manual that indexed and divided each large file into several smaller ones. A custom document browser allowed for search and viewing of each. Our technology integrated standard Adobe tools, a third-party tool, and custom programming.

Print-on-Demand Partnering

We accepted responsibility for designing and implementing both a Web solution and print-on-demand capability. We achieved the latter by partnering with a successful print-on-demand vendor. Together we developed a back-office solution that tracked the many manual versions as well as manual orders from dealers and Web retailers.

The system included interfaces to the client's dealer portal and internal ordering system. It automatically exchanged data with the enterprise system so printed-manual orders would flow to the print-on-demand vendor, with fulfillment reported back to billing.

Website for Dealers and Retail Consumers

The Website included two integrated features we designed. Using one of these, retail consumers could order print manuals; with the other, dealer technicians, internal staff, and consumers could browse manuals. Both features enabled quick search-and-response time for users.

The print-on-demand retail-ordering Website was linked with the client's consumer Website and was also made available through an Internet URL. The publishing system for dealers and internal staff was linked with the client's Virtual Academy (learning management system) and with their dealer portal.

Complete Solution with Hosting

As part of our agreement with the client, we assumed hosting and administration of the program. This eliminated the client's need to hire additional IT staff or to burden existing staff with extra work. Our help desk arranged to handle issues that might arise from end-users.

The solution for this power-sports client built on our strong history of:

- systems that stay up and operate 24/7
- accurate data handling and accounting
- interfaces to legacy enterprise systems and databases
- highly functional and elegant graphs

Our Approach

Our approach to any engagement is the same, whether the need is for a learning management system, an e-learning program, or a Web program. Over the years, we have fine-tuned our methods, which ensure optimal stakeholder input and signoff along with a rapid and effective development process.

We divided the online publishing and print-on-demand solution into three phases:

- Phase 1 – Backend solution for dealer print-on-demand orders
- Phase 2 – Online publishing for dealers and internal staff
- Phase 3 – Consumer retail ordering and limited on-line publishing

Stakeholders included management of the service and publications group along with internal subject-matter experts. The client's IT department was represented, as well as the parts department. A third-party print-on-demand vendor also participated in all three phases. Our client-interface team included a project manager, a graphic designer, and a systems design engineer.

For each project phase, we applied the following steps that proceeded in overlapping stages:

1. **Requirements Gathering** – *engaging and interviewing client stakeholders and subject-matter experts using video and other tools*

The client had developed a detailed request-for-proposal (RFP) that we used for baseline requirements. We initiated each project phase with a series of meetings

where we validated requirements, reviewed graphic illustrations of system designs, and sketched interface ideas on a whiteboard.

2. **Storyboarding and Design** – *visual and written design versions of the program that enable everyone to get on the same page*

Each project phase had its own unique challenge concerning design, technology, and user interface. We developed a design document for each stage, including mock-ups. These were reviewed and approved by all stakeholders.

3. **Rapid Prototyping** – *modeling of user interfaces and complex applications for client review and signoff*

An innovative solution was needed for browsing large analog documents. By prototyping early in the project, we removed technical and design risks. Prototyping typically starts at the same time as storyboarding and design.

4. **Development** – *programming, systems integration, and alpha testing*

In this stage, we finalized the solution, working with the client and programming team to integrate data interchange with the enterprise systems. Since challenges had already been addressed during prototyping, this development stage moved quickly.

5. **Deployment** – *beta testing with user groups, application training, and final rollout*

We visited dealerships to make sure the interface would work on the shop floor, and then made a few adjustments to streamline ease of use. The client had us host the solution on our servers. All user interfaces were intuitive, so no special training was required. The client's publications department issued letters announcing the new service.

The Results

This program came through on time, on budget, and on scope. The client noted the following highlights of success:

- Fifty-percent reduction in annual budget for manual distribution to dealerships
- Eliminated need for printed manuals in dealerships, freeing up shelf space
- Reduced dealer phone calls and questions for the technical service department
- Outstanding feedback from dealers and internal service technicians

Testimonials from Client Management

“I have never in my 40 years in business worked with a more professional group than System Simulations. They have a down-to-earth attitude and willingness to step up to do whatever is necessary. Their experience, talent, and creativity make them great partners. I recommend System Simulations whenever I have an opportunity.” (Manager of Technical Training and Publications)

“You can count on System Simulations to deliver 110% on your project. What a great team! The key players are a fantastic matchup of skills. They cover all the bases you need on Web solutions and e-learning projects in a seamless manner. Our projects moved quickly because of their ability to guide us. They absorb stuff really fast, and helped us make the best decisions.” (Director of Service)

About System Simulations

System Simulations was founded in 1991 to offer corporate clients interactive training and Web solutions. The company developed its first training application for Nissan's Corporate Training Office. Since that time, System Simulations has produced hundreds of large-scale web and computer-based training applications for large corporations in the automotive and other industries. Hundreds of thousands of individuals have taken courses covering applications ranging from human development to complex technical systems.

About the Author

Bill Siino has more than 20 years of experience designing, engineering, and producing interactive training and Web solutions. He crafts solutions within a blended media environment. Skilled in both military and commercial training systems, Bill has designed and managed CD-ROM, DVD, and Internet training systems for large corporate clients. He holds both bachelor and master degrees in electrical engineering.

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