Executive Summary

E-Learning Simulation Products and Services

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By Bryan Chapman,
and the staff of brandon-hall.com

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With traditional e-learning becoming more mainstream, learning practitioners are now positioning themselves for the next, significant movement in the use of technology in learning – namely – simulations. Of course, simulations have been around for many years in a variety of forms, from large scale flight simulators, to role-playing simulations in the classroom, to computer delivered simulations, and, most recently, high fidelity simulations that can be delivered through cyberspace.

Many organizations tell us that they'd like to use advanced e-learning simulations as part of their blended curriculum, but they feel that the barriers to entry (such as high cost and difficulty of creating simulations on their own) are simply too prohibitive.

We acknowledge these barriers, and we have made it the point and focus of this report to identify a wide variety of simulation products and services used by early adopter organizations using state-of-the-art simulation technologies to enhance their e-learning initiatives. We've also put a special emphasis on simulation technologies and custom development services that are cost-effective and focused on development products that can potentially be used by less experienced content developers.

Why This Report?

The purpose of this report is to inform learning specialists, decision makers and those who influence learning decisions about the tools and resources that exist in the simulation market. Most people don't know these tools exist or how they can help reduce costs or improve learning. The companies who provide simulation tools are often relatively small with very little marketing or exposure, yet some of the greatest innovation of the learning market is taking place in this area.

Brandon-hall.com hosts the annual Excellence in E-Learning Awards, and the best training we've seen uses simulation elements throughout. Much of the online content available "off-the-shelf" is still "page turning courseware" and often doesn't produce the type of results possible from online learning, especially when the learning involves high-level skills. If companies creating e-learning would set a basic standard of making at least 20% (as an arbitrary number) of their courses simulation-based, giving learners the opportunity to practice, they would be far ahead of the
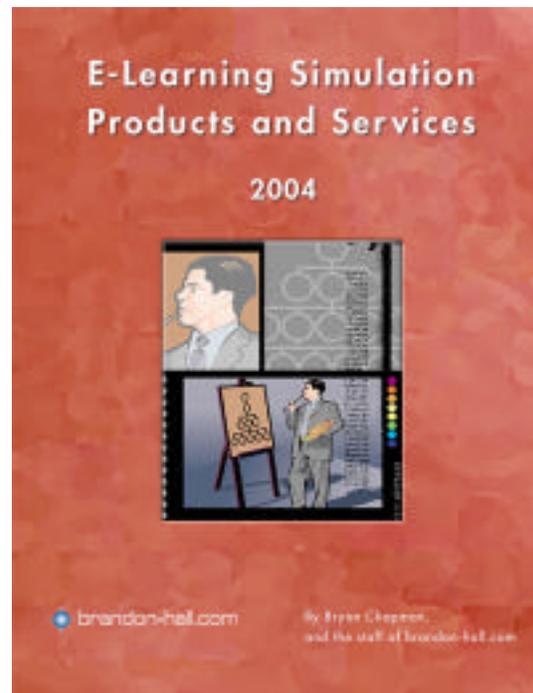
average e-learning courseware out there today and find more of the potential results from e-learning.

So why isn't there already more simulation built-in to the courseware available on the market? Cost is one deterring factor. The average ratio for creating an e-learning course is 220:1 (development time versus finished hours). In focus groups conducted by brandon-hall.com, we discovered that the creation of e-learning simulations, on average, takes from 750:1 upward to 1300:1 — when the simulations are custom developed using programming and authoring tools. Many of the tools in this report were designed to bring the creation time more in line with standard development and in many cases exceed that development time.

This report doesn't just cover simulation tools for creating your own simulations. It also covers simulations that are pre-created that can be adapted for different environments and services (from companies that have built their own internal simulation templates and tools; e.g., CognitiveArts, Allen Communication Learning Services, Strategic Management Group, etc.).

The bottom line is that we want to make you aware of what's out there and what's possible beyond creating page turning content and provide you with evaluation tools for finding simulation technologies that match your needs.

Research Methodology

Eighteen months ago, we conducted our first formal study of simulation products and services and published the findings. At that time, we identified approximately 65 vendors that focus primarily on delivering e-learning simulation solutions.

As we started our research process this time, we cataloged 106 simulation vendors. In a short 18-month time frame, there has been another explosion of available simulation offerings, reflecting the growth we projected in our previous report (published March 2002). In addition, we studied the changes in simulation systems over time and found the products to be more dynamic, easier-to-use, and making more efficient use of limited bandwidth resources.

We spoke to dozens of companies that are using simulation technologies and analyzed RFPs (request for proposals) for simulation purchases to discover the most significant needs of simulation end-users/developers. We also asked current users, potential buyers and readers of our previous simulation report to identify the products and services they would like to see covered in this year's study.

From this information, we created a comprehensive questionnaire and gathered comparative analysis information on 54 different simulation products and services. We compiled this information into the simulation vendor profiles and the comparative grids contained in this report, which you can use to quickly identify prospective candidates for your simulation development needs.

To make it easier for you to find the right solution, each simulation product and service has been classified using the following simulation taxonomy:

- Simulation development tool for customers to create their own simulations (commercially available product)
- Pre-built, off-the-shelf simulation(s) with parameters that can be modified by customers for their specific needs
- Pre-built, off-the-shelf simulations that cannot be altered or modified
- Service offering; create custom simulations for clients

Note: In many cases, vendors were assigned to more than one category, based on their respective offerings.

This information can be seen "At-A-Glance" on the top of each simulation vendor profile. Each profile contains detailed information about each vendor and/or their simulation product offering, such as interactive capabilities, level of feedback support, performance data stored during simulation sessions, competitive strengths of each product, standards compliancy, interoperability with learning management systems, whether the simulation requires a plug-in, simulation vendor company size, number of clients, vertical market industries they work with (e.g., finance, healthcare, energy, transportation, etc.), pricing information, etc.

We have also conducted a meta-analysis across all evaluated simulation products and services to assist as you compare product with simulation industry benchmarks.

How to Use this Report

We have organized this report with several resources you can use to identify simulation products using different methods for locating systems. The following is a description of the tools available:

- **Part I – Simulation Types**: Includes a section for each of the three major simulation types: (1) software simulation, (2) soft skills simulation and (3) hard skills/technical simulations. Just choose any one of these section to read about simulation examples. Each section also includes a filtered list of simulation development tools, off-the-shelf simulations, and/or custom developer services for each type. For example, let's say that you are looking for a tool to create your own simulations, teaching learners how to operate a piece of equipment. First, you find the section "Hard Skills/Technical Simulations" (under Part I – Simulation Types); then, locate the filtered list of tools that match this scenario. You could then use the list to find each matching vendor profile to get detailed information about each simulation development tool on the list.

- **Part II – Forces Shaping the Simulation Market:** This section contains a high-level overview of the trends that are shaping the use of simulations for e-learning purposes. It features a market forecast and commentary by Sam Adkins.

- **Part III – Meta Analysis of Products and Services:** Although the range of simulations that can be produced for e-learning purposes is very wide, we've tried to analyze data to show how simulation products and vendors are similar and different. The intent is to provide an overview to help you spot trends and analyze how easy or difficult it might be to find particular features you may be searching for (e.g., LMS interoperability, standards compliance, product support, etc.).

- **Part IV – Simulation Vendor Profiles:** If you are just interested in browsing through available simulation products, you should go directly to this section. Simulation vendor profiles are sorted alphabetically. If you are looking for a specific simulation offering and type; e.g., you want to find a simulation development tool to create soft skills/role-play scenarios, you can browse through the profiles, watching for the correct match in the At-A-Glance grid on the top of each page. You can also see a screen shot showing an example of the types of simulations you can create on the first page of most profiles in the report.

- **Part V – Comparative Grids:** This is the place to go if you want to scan for products and/or services by detailed information, such as scan a list of systems that are AICC-compliant or look for one that has been tested to run with Docent's LMS, or a vendor that offers hosting services, or one that has 24-hour support. Some of the grids in this section will also help you quickly scan simulation providers that focus on a specific vertical industry. For example, you could use a table in this section to find a simulation vendor that focuses on government/military simulations or custom simulation developers that have a large number of pharmaceutical customers.
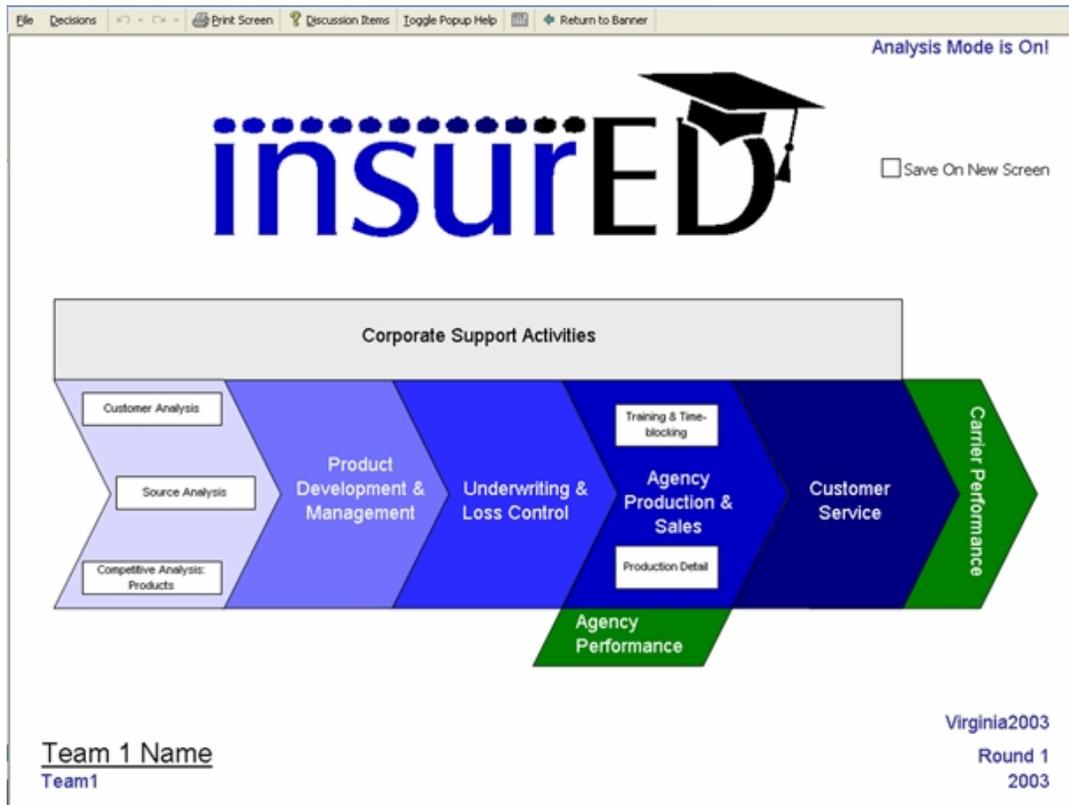
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PriSim Business War Games Inc.

Sample screen shot of simulation: learner perspective

Simulation Offering(s)	
☐	**Simulation development tool** for customers to create their own simulations (commercially available product)
■	**Pre-built, off-the-shelf simulation(s)** with parameters that **can be modified** by customers for their specific needs
☐	**Pre-built, off-the-shelf simulations** that **cannot be altered** or modified
■	**Service offering**; create custom simulations for clients

Simulation Categories and Sub-types:

Use this section to verify that the simulation product or service matches your simulation subject matter.

☐	**Software Simulations**

■	**Soft Skills Simulations**

☐	**Hard Skills/Technical**

☐	**Other:**

Contact Information

PriSim Business War Games Inc.
150 East Cook Ave., Suite 4
Libertyville, IL 60048 U.S.A.
Phone: (847) 573-8981
Toll-free: (888) 477-4746
Fax: (847) 573-8981
E-mail address: info@prisim.com
Web site address: www.prisim.com

Pre-Built Off-the-Shelf Simulations

Overview of simulation offering(s)

The simulations PriSim creates are focused on strategic thinking, financial acumen, teamwork and leadership. Participant teams manage their own virtual company, competing against each other in head-to-head, mock business simulation. Teams vie for top market share and profitability in a simulated marketplace. Participants analyze their virtual company's internal strengths and weaknesses, competitive position and financial health. Based on this analysis, they implement strategic decisions in a real-time simulated marketplace.

List of simulations available from the company

- Mini-MBA in Strategy and Finance
- Redline Dealership Simulation
- InsurED Insurance Simulation
- MAGnate Magazine Simulation
- Impact e-Business Simulation
- Deep Pockets Mortgage Banking Simulation
- Cycloan Branch Management Simulation

Modifiable?

Yes.

How much is modifiable?

All details of the simulation can be modified.

Target audience

The simulations are targeted to mid- to senior-level management.

Interactive capabilities

Interactive capabilities include "what if" scenarios, forecasting, team discussion and online help.

Advanced feedback capabilities

The simulations provide competitive intelligence reports on the "teams" in the marketplace. Income statements, balance sheets and cash flow statements are tracked.

Built-in tracking capabilities (without a third-party LMS)

No.

What type of data is tracked during simulations?

Business performance metrics are tracked, such as financial, marketplace and customer satisfaction.

Top 3 competitive strengths

- User interface sophistication and business dynamics design
- Integrated "Memo" engine to enhance the challenge beyond computerized input
- Simulations have real industry focus (not managing a generic widget manufacturer)

Custom Simulation Development Services

Overview of custom simulation development capabilities

The company focuses on simulating each client's particular business. With these simulations, participants are challenged with managing and leading a company. Teams of participants analyze internal strengths and weaknesses as well as, external opportunities and threats in the situation they are placed. Then, teams establish six-year objectives, goals and strategies.

Examples of customer work

Client #1	Chubb Insurance
Simulation target audience	Mid- to senior-level insurance carrier employees and agency managers
Goal/challenge of the project	The goal was to create a simulation of two businesses in one exercise: an insurance company and an agency network.
Description of the simulation/creative approach	The exercise was designed to bring together business partners to enhance their respective understanding of each other's business challenges. Learners needed to balance performance of both businesses and learn more about the strategic, financial and operational challenges inherent in each business.
Outcomes/results	The simulation resulted in enhanced perspective, business acumen, ability to communicate and coordinate, and greater understanding.

Client #2	Harley-Davidson
Simulation target audience	Dealer principles, general managers and department managers
Goal/challenge of the project	The goal was to replicate a Harley-Davidson dealership.
Description of the simulation/creative approach	The company developed a simulation for learners to run a dealership, making decisions about customer focus, motorcycle sales, inventory control, service, finance, insurance and rentals.
Outcomes/results	The simulation resulted in an improved ability to analyze the performance of the business, improved ability to plan for the long-term, and improved understanding for how the whole business needs to work together to optimize dealership performance.
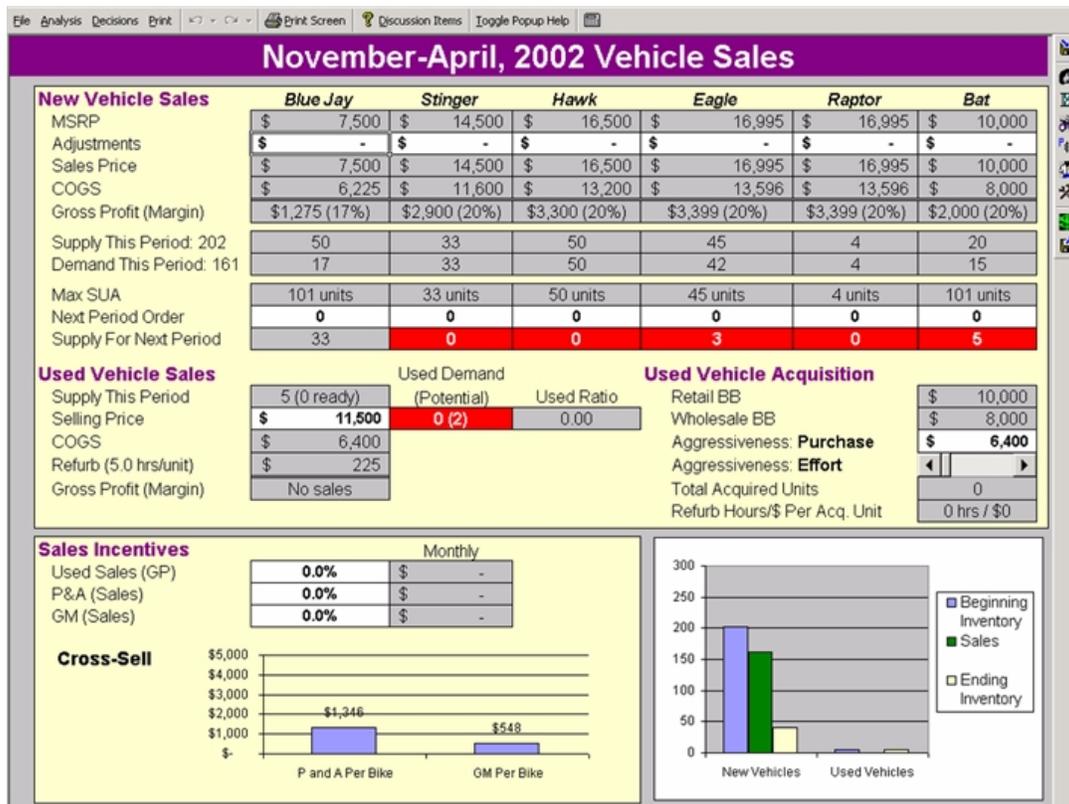
Example of custom course

Client #3	Northwestern University
Simulation target audience	"e-business" executives
Goal/challenge of the project	The goal was to show what drives online revenues and expenses in an "e-business."
Description of the simulation/creative approach	The simulation challenged learners to run an online magazine. Learners analyzed visitors/customers, invested in technologies and marketing initiatives, developed content and sold advertising.
Outcomes/results	The course resulted in a better understanding of the challenges of running an online business from both a strategic and operational viewpoint.

Client #4	Rodale Press
Simulation target audience	Editorial, circulation and advertising managers
Goal/challenge of the project	The goal was to replicate a magazine publishing company.
Description of the simulation/creative approach	The company created "MAGnate," which models the editorial, circulation and advertising decisions that are made by a magazine publishing company. Learners acquire a magazine, position it for reader and advertiser expectations, and – hopefully – make money.
Outcomes/results	Future leaders at the client enhance publishing acumen and gain a better understanding of all the decisions that drive publishing success.

Client #5	PNC Mortgage
Simulation target audience	Regional branch managers
Goal/challenge of the project	The goal was to give the user the experience of running a mortgage banking branch.
Description of the simulation/creative approach	The simulation allowed users to assess the branch's market, hire/incentivize producers, price product and establish standard producer activities to maximize branch performance.
Outcomes/results	Branch managers developed a better understanding of what is required to effectively manage their markets.

Simulation development team description

The development team consists of client-supplied subject matter experts, a client project champion and financial analyst. PriSim software developers and content writers work with the client to create the simulation, lecture materials, and pen-and-paper exercises.

Awards for simulation development

None.

Top 3 innovative interactions

- "Memo" engine that allows inclusion of non-quantitative discussions into a decision round. A team begins a round and must address an in-basket of memos. Each memo must be addressed before the team "runs" the business through the standard simulation. This allows for the introduction of random events or items that are current.

- "Competitive intelligence booth" allows teams to purchase information about the market or competitors. Many simulations provide too much information and participants don't learn the value of asking the right questions. With the booth, they have to first figure out what information is important and then seek out the information. It is designed to teach the value of information.

- "Game show challenge" is a game used to summarize content throughout the course. It's a fun way for teams to compete and get involved with the subject matter.

Simulation tools used most often

Visual Basic, Excel, PriSim Utilities Package.

Special in-house development tools?

Yes.

In-house tools available for purchase by end-user customers to create own simulations?

No.

Development ratio: hours of development per finished hour of simulation

- Longest amount of time spent to create a single finished hour of simulation: six months for a two- to three-day course

- Quickest time it took to create a single finished hour of simulation: three months for a two- to three-day course

- Average time to create a single finished hour of simulation: four to five months for a two- to three-day course

Focus of simulation development

100% Soft skills simulations.

Customer types by vertical industry

30% Finance/banking/insurance

30% Information technology/high-tech

30% Industrial/manufacturing

10% Publishing

Top 3 competitive strengths

- Broad industry expertise
- Strong desire to customize (not just modify existing assets)
- Interface design and delivery capabilities

Additional Product Information

Simulation product name

Mini-MBA in Strategy and Finance.

AICC-compliant

☐	AICC-certified (for a list of AICC-certified products see http://www.aicc.org/pages/cert.htm)
☐	AICC-compliant (interoperable with third-party LMS products using AICC functionality)
☐	Uses its own system for passing performance data to LMS products
■	N/A; doesn't comply with AICC standard

SCORM-conformant

☐	Version 1.3
☐	Version 1.2
☐	Version 1.1
☐	Version 1.0
■	N/A; not SCORM-conformant

Interoperability with third-party LMS solutions

No.

Successfully tested with the following LMS (or other) products:

None tested by the company.

Bookmarking within the simulation

Yes; learner can bookmark his/her place in the simulation and return at a later time.

Level of data automatically captured during the simulation

☐	Start time
☐	End time
☐	Duration (how much time was spent in the simulation)
☐	Date (date last accessed)
☐	Completion status (passed/failed)
■	Composite score for simulation
■	Completion status and/or score for each step performed in the simulation
☐	A list of steps performed incorrectly

Plug-in required vs. Web native

The courses are stand-alone, executable programs.

Cross-platform support for engaging in the simulation

■	PC
☐	Mac
☐	UNIX
☐	Other:

Minimum browser required

N/A.

Company offers hosted solution

No; don't offer hosting for simulations.

Number of companies/organizations using this product

Five.

Recommended system requirements for simulation developer

N/A.

Recommended system requirements for the learner

Any version of Windows.

Recommended server requirements

N/A.

Standard list pricing estimates

$28,000 = total price for 100 learners
Pricing is per person, depending upon number of seminar days.

Year this product was first released (version 1.0)

1998.

Product Support

■	Live telephone support
☐	24-hour support available for NO additional fees
☐	24-hour support available for additional fees
■	No 24-hour support available
■	E-mail support
☐	Active user support groups (peer-to-peer advice)

☐	Product conference (live event)
☐	Vendor offers training classes available on product
☐	Third-party (training partners) classes available
☐	Vendor offers full outsource courseware development services

About the Company

Company size (total number of employees)

Seven.

Number of employees dedicated to simulation efforts (at least 50% of their time)

2	Developers working on simulation products
3	Simulation developers that can create simulation-based courseware for end-user customers (including programmers, authors, instructional designers, authors, writers, project managers, etc.)
2	Other resources, such as sales and marketing, support staff for simulation

URL for demo simulation (provided for your convenience; link is subject to change)

No online demos are available.

Top 3 competitors

- BTS
- SMG
- Forio

Top 10 clients

- Harley-Davidson
- Chubb Insurance
- Delphi Automotive
- ADP
- Raytheon
- Rodale Press
- Northwestern University
- National Semiconductor
- Mortgage Bankers Association
- Signature Flight Support

Year company started creating simulations

1997.