

# THE COMPUTERWORLD HONORS PROGRAM

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## CASE STUDY



**LOCATION:**  
*Villanova, Pennsylvania,  
United States*

**YEAR:**  
*2006*

**STATUS:**  
*Laureate*

**CATEGORY:**  
*Education and Academia*

**NOMINATING COMPANY:**  
*Dell*

### **ORGANIZATION:**

**Villanova University**

### **PROJECT NAME:**

**Villanova Applied Finance Lab**

### **Summary**

The Applied Finance Lab at the Villanova School of Business, part of the school's Institute for Research in Advanced Financial Technology (IRAFT), is an experiential learning environment in which the academic principles and traditional theories taught in the classroom can be brought to life through a combination of real and simulated exercises. By working and learning in the Applied Finance Lab, students step out of their textbooks and immerse themselves in a real-world experience. The Applied Finance Lab is also a result of Villanova's internal and external collaboration. Internal collaboration between faculty, technology, engineers and librarians coupled with external collaboration and consultation with key alumni from the financial sector, the Business Schools' CIO Advisory Council and the University's technology partners contributed to the success of the initiative.

### **Introductory Overview**

In the 1950s, business schools trained practitioners, whose focus was on a particular occupation, profession, or technique. This practice was questioned by the Association to Advance Collegiate Schools of Business (AACSB) and these business schools were challenged to develop more scholarship and research. This led to the evolution of theoretical studies and an abstraction of business processes and models, which in turn produced business generalists that required industry-specific training as they entered the work force.

Today, with outcomes-based assessment, there is renewed emphasis on business skills and on business-relevant thought leadership. Industries—particularly the financial industry—are seeking graduates who can immediately contribute to their enterprise both tactically and strategically. The challenge from an educational perspective is to provide students with both the business skills (tactical) and the scholarship (strategic) of their business discipline.

This challenge is particularly important to the Villanova School of Business. Prospective students have a plethora of business school options to choose from, and the proximity of Philadelphia to Wall Street makes Villanova business students keenly aware of their real world strengths and deficiencies as they compete for jobs and internships.



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Villanova has addressed this challenge in part by providing a technology-enhanced learning environment for students with a focus on the business community and its rapidly-changing needs. The goal of this environment is to insure that students are exposed to current business events and technologies, which in turn make them an immediate asset to the business community upon graduation.

The Applied Finance Lab at the Villanova School of Business, part of the school's Institute for Research in Advanced Financial Technology (IRAFT), incorporates the changing needs of the business community into the curriculum. Academic principles and theories taught in the classroom can be brought to life through a combination of real and simulated exercises. The lab also provides faculty members with a research resource that can be utilized to validate theories, create enhanced course materials, and conduct market simulations.

### Benefits

The Applied Finance Lab at the Villanova School of Business was designed to enhance the learning environment and provide students with real-world experiences. Although these experiences were initially focused in terms of the business community and its changing needs, many of the benefits realized by the creation of the facility extend beyond corporate recruitment.

One of the most visible benefits of the lab is the sense of community it fosters. Unless a class is in session, there is always a collection of students working, discussing, helping, and collaborating with their peers and faculty members. The room was designed to be a nontraditional learning environment that is both warm and inviting. The success of meeting these goals is evident in the frequency that faculty are found in the lab interacting with students.

As a teaching tool, the lab has exceeded the expectations of the planners in allowing students to study market behavior, market structure, market integration, market efficiency/inefficiency, and the mechanics of trading, price discovery, market expectations, and market arbitrage. The capabilities and tools that are integrated in the lab have led to significant curricular changes in the majority of finance-oriented classes.

This enhanced community atmosphere has increased communication and coordination between faculty, students, and alumni. Our alumni—especially those on Wall Street—are more involved with the Villanova School of Business and its Finance Department than ever before. Alumni view the students who have experienced this environment as more knowledgeable, skilled, and enthused about the industry—and, most importantly, as an excellent prospect for employment.

The instructional technology concepts (student centered) have become a model for the rest of the University. The environment facilitates individual, group and full classroom instruction and collaboration. This innovation includes advanced and centrally or individually controlled visuals and sound. The lab also provides a fully operational financial research facility utilized by faculty and the Student Managed Investment Funds and the Villanova Equity Society.

### The Importance of Technology

Technology at Villanova has played a variety of important roles and will continue to do so in the future. However, within the context of this project, information technology was the pivotal component. Today's financial institutions—including banks, financial traders, and exchanges—



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have implemented vast technological changes during the past five years.

Unlike the financial industry, much of the education industry's investment in technology has been from a delivery perspective, not from an industry "tool set" perspective. This created a disconnect in which high-tech environments were delivering scholarly information to students who were unaware of industry needs or expected software competencies.

The technologies that were deployed in this room had to meet a wide variety of needs from both an educational and a support perspective. There were many options available from the standpoint of a trading desk—including specialized hardware and thin client technology. As tempting as some of these technologies were, their deployment would have limited the use of the facility for other purposes and presented special challenges in terms of Villanova's support infrastructure. It was therefore decided to deploy highly reusable commodity components that could be selectively replaced or upgraded, and easily supported.

The final configuration for the researcher workstations was built around a Dell high-end system with three flat panel displays, enhanced memory, high speed network capabilities, and several support servers for shared applications and storage. These platforms were capable of running specialized financial applications, industry specific trading software, and standard commercial software.

### Originality

As a classroom, the lab had to be designed with clear sightlines to the instructor and a white board. Where sightlines are less than perfect, the room has 30" LCD monitors over every work area so that students can see computer, video, and whiteboard material. In addition, there is a PA system in order to help the instructor overcome the background noise of all the cooling systems.

In order to ensure that the room would be used to the fullest extent, new educational programs were developed as the room was being built. These programs include:

- Student Managed Investment Funds (graduate and undergraduate)
- Market Microstructure Course (Theory and Practice of Trading)
- Masters of Science in Finance (MSF)
- Financial Markets Course
- Bloomberg Certification Program
- Villanova Equity Society (Student Club)

It is the creation and inclusion of these educational programs into existing curricula that improves the quality of the department, the business school, and the university.

The software applications available in the Applied Finance Lab offer the full array of tools available to financial professionals and they include; SPSS, Business Week On-Line, Learning Bridge, Standard and Poors, Global Insight, Wharton Research Data, CompuSTAT, WRDS, Thomson One, Bloomberg, CRSP/Compustat (full suite), DRI Global Insight, NYSE Trade & Quote Data and Corporate Governance (Idealworks & IRRC).

At the university level, many schools are building "mock trading rooms" that mimic a profes-



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sional trading room with the exception of the telephone network. Indeed, many university rooms could be used by traders in an emergency situation. However, there are not enough trading jobs to justify the expense for each university to build such a room and many such rooms sit empty. Therefore, an applied finance lab has to meet many needs. It has to meet its primary purpose to be a mock trading room—but it also has to meet the various needs of a business school. It also has to be a classroom, a computer lab/library, a marketing focus group lab, and a decision science simulation lab.

### Success

Since the very beginning stages of the Applied Finance Lab, this project was an overwhelming success. The collaboration between faculty, technologists, facilities engineers, and library personnel was phenomenal. The project was completed on time, under budget, and the end product was a lab that not only “stops people in their tracks,” but meets or exceeds all of the objectives for which it was designed.

Students enjoy the atmosphere of the lab because it is conducive to collaboration among their peers, provides them with capabilities that can be utilized in all of their courses, and allows them to develop skills that they know are applicable in the real world.

Faculty members see this facility as a means to enrich the courses that they have been teaching for many years. The tools and technologies available allow them to stretch beyond the bounds of their textbooks and create imaginative new learning experiences for their students. They have also discovered that these same tools and technologies are available for them to further their research endeavors.

Additionally, the lab is seen as a showcase of technology, architecture, and collaboration. Almost every tour of campus includes a stop at the Applied Finance Lab. It has been featured in numerous local papers and on television, and all of the partners who participated in the creation of the lab can cite it as an outstanding example of their company’s capabilities.

The students see this lab as a valuable experience and spend as much time as possible in it. When it comes time for course selection, the courses that utilize this lab are the first ones to fill up. The faculty also recognizes the potential impact that this facility’s resources can have on their courses and are trying to schedule visits and demonstrations for courses that weren’t initially envisioned as utilizing the lab. The lab is now so popular that it operates virtually 18 hours per day, seven days a week, and the demand for “class time” in the lab constricts the open collaborative hours that were initially set aside when the facility first opened.

### Difficulty

This project presented difficulties on many different levels. The first and foremost issue was with the many concurrent streams of activities that were required to converge in order to meet the projected opening date of the facility. From a project perspective, there were so many different hardware technologies as well as software tools to evaluate and select from, that the project could have easily run over by several months just choosing the toolset for the lab.

Another difficulty centered on modifying the existing curriculum so that courses would be able to immediately utilize the capabilities of the lab from the beginning of the semester. These mod-



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ifications had to be done while the capabilities of the lab were being defined and refined, which required a significant amount of time and vision on the part of the faculty. This time commitment was so extensive that for a period of eight months, the faculty had to remove themselves from many other obligations, including the Villanova Equity Society which basically suspended the organization for the duration of the project.

The total cost of the project in its desired state exceeded allocated budget dollars. The option at one point was to scale down the scope and reduce monies spent on the technology, environmental, and furnishings which would ultimately dilute the result and the desire to differentiate Villanova's program from other universities. It was at that point Villanova sought the assistance of alumni in the financial sector, members of the Business School's CIO Advisory Council (Philadelphia Stock Exchange) and our technology vendor partners (Dell) to assist us with the project.