

> Predictive Modeling Helps University Identify Major Gift Prospects

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Developed in partnership with the Council for Advancement and Support of Education (CASE)



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Introduction

In order to continue its tradition of excellence in the increasingly competitive environment of higher education, the School of Arts and Sciences at The Johns Hopkins University developed aggressive annual fundraising goals that necessitated a decidedly more sophisticated approach to prospect identification.

Using SPSS Statistics Base and Clementine®, the school collaborated with the Council for Advancement and Support of Education (CASE) to create a predictive model that focused efforts on the 10 percent of alumni most likely to become major donors. This model identified hundreds of qualified prospects for major gifts, and was subsequently tested on data from nine other non-profit institutions across the United States and abroad with universal success.

School seeks to identify and prioritize prospects

The Zanvyl Krieger School of Arts and Sciences at the Johns Hopkins University (JHU), based in Baltimore, Maryland, has more than 40,000 living graduate and undergraduate alumni. Complementing the university's world-renowned medical school, the School of Arts and Sciences (A&S) includes several departments that are among the top-ranked of their kind in the country.

Excellence at JHU is not confined to the classroom: the university consistently ranks among the top five fundraising institutions in the country in terms of annual cash receipts, and will soon close a \$3.3 billion campaign. Expectations for A&S, the university's second largest division, are high, and the school has developed an aggressive growth plan that aims to double fundraising receipts in the next five years.

With the advent of a bold new growth plan for the school's advancement operation, it was clear that A&S needed to develop new strategies to enhance the sophistication of its research operation. Unable to optimize its alumni database, the school instead focused its gift officers on blind discovery work that often proved fruitless.

The school decided to explore its options to accomplish two goals:

- Identifying new prospects for major gifts
- Prioritizing those prospects already engaged by the development office

Predictive modeling yields successful donor profile

In 2008, A&S deployed SPSS Statistics Base and Clementine to help develop a predictive model for major contributions to the school. Through the Peter B. Wylie Data Mining Internship Program administered by CASE, a member of the A&S staff worked directly with CASE researchers and experts from the field of data mining/predictive modeling for three months to hone his understanding of the statistics involved in developing predictive models.

By choosing to invest in SPSS Inc. software, A&S adopted the same technology already used by more than 250,000 commercial, academic, and public sector organizations—and gained a competitive advantage by using this technology to conduct a specific procedure only recently harnessed for the advancement of higher education.

When applied to A&S donor data, the predictive model helped the advancement office:

- Produce “up to the minute” descriptive statistics on the academic, geographic, and philanthropic distribution of alumni
- Answer these critical advancement questions with actual statistics, not guesswork:
 - Who are our top prospects?
 - What variables predict that an alumnus will become a major donor?
 - When in the lifecycle is an alumnus most likely to become a major donor?
 - Where should we be spending our time?
- Develop a profile for the school’s major donors, using dozens of positively and negatively correlated variables amassed from a handful of database fields
- Rank each alumnus according to his/her likelihood to become a major donor
- Identify hundreds of previously undiscovered prospects for major gifts, each with an established history of giving to the school
- Evaluate the quality of gift officer portfolios to enhance individual and office expectations

The predictive model demonstrated impressive predictive strength. Using just 10 database fields—such as marital status, graduation year, and the presence or absence of a business address—A&S was able to develop a profile that captured 90 percent of its major donors. Fewer than 1 in 10 of the model’s highest-rated prospects have never made a gift, a figure seven times lower than the rest of the population.

The model was then applied to data from nine other institutions of higher education, including community colleges and public, private, and land–grant colleges and universities across the United States, as well as in Canada and England. In every instance, it clearly predicted the alumni most likely to become major donors on the basis of an institution-specific major donor profile. Within weeks, each of these nine schools gained a better understanding of its alumni base and acquired dozens or hundreds of previously undiscovered prospects for major gifts.

Advancement office reaps additional benefits

In addition to the intended outcomes of the predictive model, A&S realized several secondary benefits from its use of SPSS Inc. software:

- **Ease of use/accessibility.** SPSS Statistics Base has an intuitive user interface. The software is also prevalent on college campuses, where instructors and staff are knowledgeable in its use, and it is frequently employed to conduct essential statistical analyses in the social and natural sciences.
- **Immediate insight.** Within a matter of days, the A&S dataset was cleaned and prepared for analysis using SPSS Statistics Base. After preliminary analysis, the predictive model itself was built in minutes; with a working model in place, Clementine allowed for the immediate interpretation of results through decision trees and graphical displays.
- **Repeatable process.** Following the conclusion of this project, A&S was able to revise, augment, refine, and re-apply its model multiple times to account for newly discovered data and reflect changes in the office’s focus. By relying on a living, breathing model, A&S makes real-time decisions using the most accurate data available.

Conclusion

The data mining tools that have been used for decades by corporations can provide a similar infusion of business sense for nonprofits. Data-driven decision making, including the use of statistics to develop predictive models, has the potential to dramatically increase advancement productivity. By enabling advancement offices to harness the information in their data, predictive modeling provides an opportunity for any institution to match its most critical questions with concrete results.

About SPSS Inc.

SPSS Inc. (NASDAQ: SPSS) is a leading global provider of predictive analytics software and solutions. The company's predictive analytics technology improves business processes by giving organizations consistent control over decisions made every day. By incorporating predictive analytics into their daily operations, organizations become Predictive Enterprises—able to direct and automate decisions to meet business goals and achieve measurable competitive advantage.

More than 250,000 public sector, academic, and commercial customers rely on SPSS Inc. technology to help them increase revenue, reduce costs, and detect and prevent fraud. Founded in 1968, SPSS Inc. is headquartered in Chicago, Illinois. For additional information, please visit www.spss.com.

About CASE

The Council for Advancement and Support of Education is one of the largest international associations of education institutions, serving more than 3,400 universities, colleges, and independent elementary and secondary schools in 60 countries. CASE is the leading resource for professional development, information and standards in the fields of educational fundraising, communications and marketing, and alumni relations.



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