

HOW ADVANCED STATISTICAL ANALYSIS CAN BENEFIT ACADEMIA

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This Knowledge Brief highlights the benefits academic institutions achieve by incorporating advanced analytics into their activities.

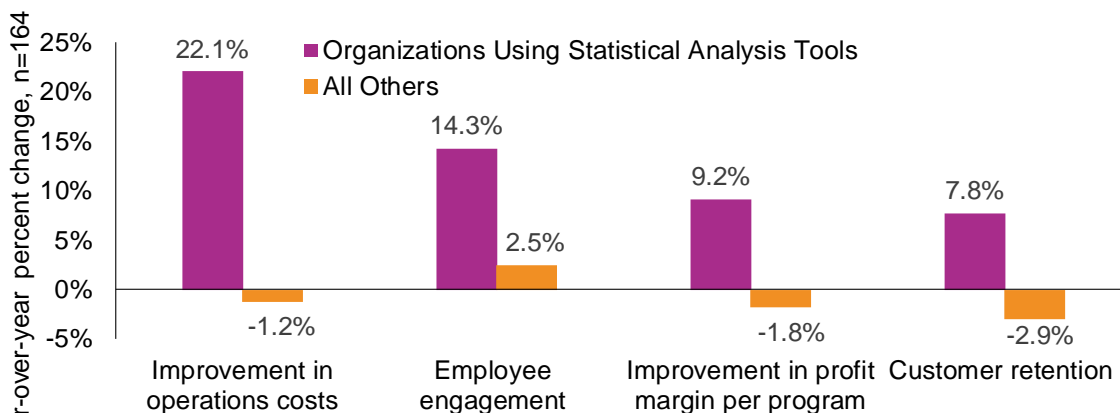
Turning Data into Insight Helps Academic Institutions Maximize Results

Academicians across academic institutions such as universities and colleges often have an abundance of data collected through primary and secondary research activities. They use this data for various purposes, including publishing research articles and teaching students about new findings. However, Aberdeen's research shows that while many organizations are rich in data, they are poor in *insights*. Specifically, findings reveal that 83% of all organizations are not fully satisfied with their ability to use existing data to achieve desired results, such as publishing research articles accepted by leading institutions.

There are many reasons why academicians could find it challenging to glean insight from their data. The first and foremost reason is a lack of proper technologies that are necessary for analyzing data and turning it into valuable insight. The good news is that Aberdeen's related research shows that when universities use advanced analytics (see sidebar), they are 8.7 times more likely to indicate that they are extremely satisfied with their ability to use data to do their jobs more efficiently.

As illustrated in Figure 1, advanced analytics helps organizations achieve significant performance gains through better use / analysis of existing data.

Figure 1: Academic Organizations Using Advanced Analytics Achieve Superior Performance Results



Source: Aberdeen Group, July 2018

Definition: Advanced Statistical Analysis

Aberdeen defines “advanced statistical analysis” – also referred as ‘advanced analytics’ in this document - as a set of technologies (e.g., business intelligence, predictive analytics, and root-cause analysis) enabling organizations to analyze data to uncover hidden trends, make forecasts, and derive actionable insights.

For academic institutions, it can support employees with their research programs and assist them in publishing articles that will help advance the academic careers of faculty members and position the institution as an academic leader in the related area.

There are four categories in which organizations using advanced statistical analysis tools achieve superior results, compared to organizations without this technology. Let's take a closer look at each one and discuss how advanced analytics influences universities and colleges' performance in each category.

Figure 1 shows that users of advanced analytics — referring to universities and colleges using the technology — achieve 22.1% annual improvement (*decrease*) in operations costs, compared to non-users observing 1.2% worsening (*increase*). Advanced analytics helps organizations uncover hidden insights which helps decrease costs by driving efficiency in academic research programs. Also adding new data points to existing data increases the likelihood of generating accurate and actionable insights.

Another reason for the cost savings enjoyed by colleges and universities using advanced analytics is the ability to generate insights more efficiently. This refers to utilizing capabilities such as time-series analysis, correlation, regression, etc., in a more user-centric manner, reducing the complexity in data analysis. Less complexity means academicians can conduct their research more effectively — and in less time.

When academicians are empowered with tools that make doing their job more efficient, they are more likely to be productive and engaged in their role. In fact, Figure 1 reveals that organizations using advanced statistical analysis enjoy 5.2 times greater annual improvement in employee engagement rates (see sidebar) compared to non-users (14.3% vs. 2.5%). For academic institutions, this means that academicians can focus more on project outcomes and advancing their own knowledge and expertise in their domain, rather than spending too much time navigating the complexities in data analysis.

Improvement in employee engagement rates is also correlated with academicians' ability to drive innovation, and thereby influence lives of others. By using advanced statistical analysis, academicians can better analyze complex data sets and uncover hidden insights that can unlock innovation across myriad areas. This innovation provides a sense of fulfillment for the academician, in addition to contributing to the success of academic organizations and society overall.

A side benefit of boosting employee engagement rates is that engaged academicians are also more likely to stay with that university or college. This means that these organizations can reduce the cost of employee churn, including the cost of delays in research projects, overtime costs for current employees, and the cost of hiring and training new employees. Considering the difficulty in replacing academic talent, let alone the cost, it's no surprise that institutions that provide academicians with advanced statistical analysis tools also observe significant reduction in their operations costs.

Organizations that are extremely satisfied with their ability to use data are 2.1 times more likely to use statistical analysis tools, compared to those that struggle with using data.

Definition: Employee Engagement

Aberdeen defines “employee engagement” as a state of positive work-related attitude, characterized by high levels of energy, emotional commitment, and satisfaction derived from the work itself. When employees are engaged, they feel a vested interest in the organization's success and are both willing and motivated to perform to levels that exceed the stated requirements of their job.

While academic institutions don't seek to maximize profit, they must closely monitor their earnings in comparison to their costs to ensure they can fund their operations and grow over time through activities such as adding more faculties, buildings or campuses. Data in Figure 1 shows that organizations using advanced analytics tools enjoy 9.2% annual improvement in their profit margin per program, compared to 1.8% *worsening* by non-users.

Programs refers to the research activities conducted through academicians. The 11% gap between users and non-users of advanced statistical analysis is significant. Consider an academic institution generating \$5 million in profit — referring to the difference between its earnings through tuition, alumni donations, etc., versus its cost to operate. This gap in profit margins translates to \$550,000 greater profit for users of advanced statistical analysis tools. Over the course of five years, that same institution would observe \$2.75 million in cost savings by improving profit margins through efficiency gains in academic research activities.

Managing student retention is a key goal for almost all organizations. This includes minimizing drop-out rates across students and delivering a strong student experience that will result in those students, alumni, and their network becoming advocates. Figure 1 shows that organizations using advanced analytics once again have a significant advantage in improving this metric, compared to non-users. Specifically, they achieve 7.8% annual improvement in customer (student) retention rates, compared to 2.9% *worsening* by non-users.

Success in this area is vital, as it supports academic institutions with a regular pool of applicants whose tuition is needed to continue operations. Advocates of academic institutions are also more likely to donate as alumni, and hence provide these organizations with continued financial benefits.

Key Takeaways

Data is vital for academicians to do their job. However, academicians can only benefit from data when they have the right tools to analyze it. To this point, Aberdeen's research shows that only 17% of organizations are satisfied with their ability to use data to achieve their goals. These savvy users of data are 2.1 times more likely (75% vs. 24%) to use advanced analytics.

Findings in this Knowledge Brief reveal that organizations using advanced statistical analysis tools achieve significant annual performance gains — and edge out non-users of this technology. These include reducing operations costs, growing profit, boosting engagement rates of academicians, and turning students and alumni and their networks into advocates.

As an academic institution, if your performance is behind that of the advanced analytics users illustrated in Figure 1, we highly recommend you consider how this technology can support your academicians in doing their jobs. This will help uncover potential opportunities to empower your employees. It will also help

assess ways you can make the process of turning data into insight more efficient — and help transform your organization by aligning your activities with those of your top-caliber peers.

About Aberdeen Group

Since 1988, Aberdeen Group has published research that helps businesses worldwide to improve their performance. Our analysts derive fact-based, vendor-neutral insights from a proprietary analytical framework, which identifies Best-in-Class organizations from primary research conducted with industry practitioners. The resulting research content is used by hundreds of thousands of business professionals to drive smarter decision-making and improve business strategies. Aberdeen Group is headquartered in Waltham, Massachusetts, USA.

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