NUCLEUS RESEARCH

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ROI CASE STUDY
IBM BUSINESS ANALYTICS
CINCINNATI ZOO

THE BOTTOM LINE

Nucleus Research examined the use of IBM Cognos BI at the Cincinnati Zoo and found that analytics enabled managers to learn more about their operations and make smarter decisions that led to revenue increases and cost reductions. In one example, managers used analytics to learn more about when visitors were most likely to buy ice cream and made small changes to the operating hours of the ice cream kiosks, leading to an increase in food revenues. Similar analyses and changes to operating practices caused admissions to increase by 4.2 percent and on-site merchandise revenues to increase by 18 percent.

ROI: 411%

Payback: 3 months

Average annual benefit: $738,212

THE COMPANY

The Cincinnati Zoo is a nonprofit 100-acre facility serving an average of 1.2 million people annually. The zoo features more than 500 animals and 3,000 plant species, making it one of the largest collections in the country.

THE CHALLENGE

In late 2009, senior management of the zoo identified three trends that were making it increasingly difficult to fund the organization. They included:

- Funding. In Ohio, as in other states, taxpayers were becoming less interested in dedicating their tax dollars to cultural attractions such as zoos, aquariums, and museums.
- Admissions. As a result of the recession, the zoo was experiencing declines in visitors, member volumes, and on-site spending by visitors.
- Visitor mix. Over the prior several years, the percentage of zoo's visitors who were members had steadily increased. Although this indicated an increased role for the zoo in the local community, it was also problematic; members tend to spend far less money during a visit than non members.

In order to overcome these challenges, the zoo's executive management team wanted to find ways to both reduce its cost and increase revenues from sources such as admissions, memberships, food purchases, and merchandise purchases. The problem was data. Although the zoo had a well trained and capable workforce, the organization's data was in three separate data sources, some of which

TOPICS

Business Intelligence & Analytics

consisted of paper-based records of on-site purchases. With reporting limited to one manually-built weekly report, the zoo was unable to give employees the information they needed to make better operational decisions on a day-to-day basis.

The zoo's challenge was one often faced by mid-market companies and not-for-profit organizations with limited IT resources. Although an organization may find it easy to accumulate large amounts of operational data, if data sources are not combined and a reporting structure is not created, employees' decision making capabilities will be limited, making it difficult for an organization to grow or overcome operational challenges.

THE STRATEGY

In order to combine its data and improve its reporting capabilities, the Cincinnati Zoo decided to adopt business intelligence. The first step for the organization was creating a list of business requirements. The organization's senior committee determined that it wanted dashboards and reporting capabilities for data types that included memberships, admissions, food sales, and merchandise sales. Geographic information was also critical. In order to perform better market segmentation, the executive committee wanted employees to begin obtaining the zip code of a buyer during every transaction.

The zoo considered IBM Cognos BI, SAP Business Objects, and Tableau Software. IBM Cognos BI was ultimately chosen for two reasons. The first was usability. Members of the executive committee believed that for their operating environment, IBM's reporting, dashboarding, and drill-through capabilities would be the easiest to use. The second factor was support. After reference check discussions with similar organizations, the team believed that the IBM customers received faster response times and more rapid problem resolution. This was a particularly important factor for the executive committee, which wanted to ensure it would receive strong ongoing support even though it would be a small customer of IBM.

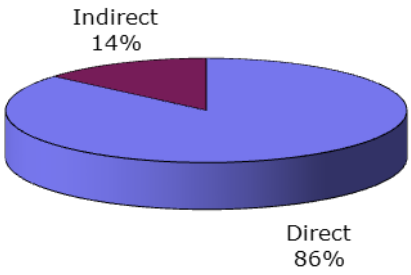
IBM Cognos 8 was deployed over a 3-month period by the director of park operations, one part-time IBM consultant, and two part-time consultants from Brightstar, an IBM partner. First the deployment team evaluated the zoo's business requirements of the organization, which included 25 operational reports and dashboards. Based on these requirements, the team created a data warehouse consisting of data cubes for point-of-sales data, geographic data, membership lists, and inventory records. The data warehouse was integrated with IBM Cognos 8 for creation of the new reports and dashboards which were then tested for accuracy by the team. Prior to the go-live date in early October 2010, formal training was given to 15 users. In March 2011, seven of the organization's 16 seats were upgraded to IBM Cognos BI v10 so that executive users could use new drill-down capabilities for performing ad-hoc queries.

KEY BENEFIT AREAS

Adopting IBM Cognos BI significantly improved the decision making capabilities of the organization's executive team, mid-level managers, and employees. Key benefits of the project included:

- Improved marketing effectiveness. The zoo reduced operating costs by using analytics to eliminate low-return marketing efforts. One area of benefit involved discounts. After using analytics to examine discounts on admissions, the zoo determined that an expensive AAA promotional campaign designed to drive admissions from out-of-market customers was unexpectedly resulting in ticket discounts for local residents, who were likely to visit the zoo without a discount. By canceling the program the zoo recovered a significant amount of lost revenue. The zoo also reduced its annual advertising expenditures. After accumulating large amounts of zip-code specific customer data, the zoo significantly improved its market segmentation and the success of its marketing campaigns, enabling the organization to reduce ad spending by 43 percent.
- Profits on new revenues. With new capabilities for examining the habits and preferences of both visitors and members, the zoo was able to increase merchandise and food revenues by 12 percent. Improvements occurred in three areas:
  - Ticket sales increased by 4.2 percent as a result of the deployment. The zoo drew new visitors from nearby neighborhoods and out-of-market areas after using IBM Cognos BI to both identify affluent zip codes with people who were likely to visit the zoo and crafting a mass-mail campaign for those areas. The zoo's new customer segmentation and mass-mailing practices were so effective that admission volumes from two affluent out-of-market areas averaged 32 percent.
  - Food revenues increased by 18 percent after IBM Cognos BI was used to determine how much of each type of food was purchased and when, so that managers could adjust food sales practices with an eye towards maximizing sales. For example, ice cream sales increased significantly after identifying the peak purchase times for this product and making adjustments to the closing hours of the ice cream kiosks. Food sales also increased as a result of the increased number of visitors.
  - Merchandise sales also increased by 18 percent for two reasons. First, analytics was used to target members with a promotional campaign involving discounts. Purchases by these members increased significantly and exceeded the cost of the discount. Merchandize sales also increased after analytics was used to examine the zoo's revenue mix. Revenues were increased by eliminating slow-moving items and raising the prices of the most popular items.
- Avoided headcount additions. After the deployment, the zoo was able to dramatically increase the volume and granularity of its reporting without any additions to staff. By using IBM Cognos BI to automate report creation, the zoo eliminated labor-intensive report building tasks for the zoo's director of operations, as well as the mangers in charge of areas such as food services, admissions, merchandising, and fundraising.

BENEFITS

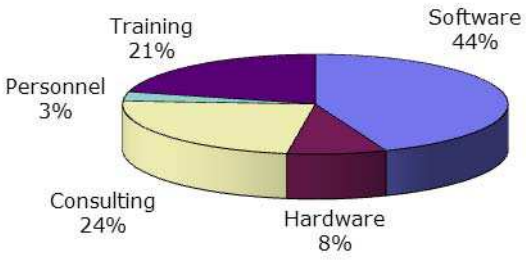


TOTAL: $2,214,636

KEY COST AREAS

Key cost areas for the deployment included software, consulting, training, hardware, and personnel. Software costs consisted of 15 concurrent seats of IBM Cognos 8, seven of which were then upgraded to IBM Cognos BI v10 in March of 2011, and annual license maintenance. The organization received preferential pricing for the software because of an agreement with IBM that was related to other activities. To normalize for this, Nucleus used standard IBM pricing. The application was deployed over a 3-month period by the director of park operations who spent 20 percent of his time on the deployment and was assisted by one IBM consultant and two consultants from Brightstar, an IBM Partner. The consultants assisted with the construction of a data warehouse and several data cubes. IBM Cognos BI and supporting data were deployed on a server purchased specifically for the deployment. Prior to the go-live date, 15 end users attended a formal, 5-day training session.

COSTS



TOTAL: $169,516

BEST PRACTICES

The high level of commitment from the organization's executive committee was key to the successful adoption of IBM Cognos BI at the Cincinnati Zoo. From the beginning, this committee, which included senior managers and members of the board of directors, applied a number of best practices. First, the team set out clear goals which matched the overall mission of the organization. These goals included

acquiring reporting visibility required to increase revenues from admissions, memberships, and on-site purchases of food and merchandise. Second, the board required that potential vendors prove an ability to deliver these operational capabilities rather than any specific product features or functionality. Third, the committee helped the deployment team and mid-level managers achieve cultural changes required for the success of the deployment, including new processes for gathering customers' zip codes during all transactions and the daily use of analytics in the making of operational decisions.

CALCULATING THE ROI

Nucleus calculated the costs of software, consulting, training, hardware, personnel, and other investments over a 3-year period to quantify the Cincinnati Zoo's investment in IBM Cognos BI.

Direct benefits included reduced operating costs and profits from new sales of tickets, food, and merchandise. The quantification of improved marketing effectiveness included two calculations. Avoided advertising costs was calculated by examining the reduction in annual media purchases and identifying which cancelled purchases were replaced by marketing campaigns designed using analytics. The avoided cost of the organization's cancelled AAA out-of-market discount promotion was calculated by identifying the average annual amount of discounts which historically had been given to visitors. Increased profits from new sales was quantified by determining the increase in these revenues after the deployment, estimating the portions of these increases attributable to the deployment, and applying the operating profit margin of each type of revenue. The indirect benefit of avoided headcount addition was quantified by comparing the volume of reporting before and after the deployment, estimating the number of additions that would have been required to achieve the current level of reporting without IBM Cogno BI, and applying the average fully-loaded annual cost of an employee.

Although not-for-profit entities such the Cincinnati Zoo are not subject to corporate taxation, a rate of 50 percent was used to enable direct comparison to deployments in the private sector. Had a tax rate of zero percent been used, the ROI would have been 559 percent and the payback would have been 2.2 months.

DETAILED FINANCIAL ANALYSIS
CINCINNATI ZOO

SUMMARY

Project:	**IBM Business Analytics**
Annual return on investment (ROI)	**411%**
Payback period (years)	**0.25**
Average annual benefit	**738,212**
Average annual total cost of ownership	**56,505**

ANNUAL BENEFITS	**Pre-start**	**Year 1**	**Year 2**	**Year 3**
Direct	0	636,962	636,962	636,962
Indirect	0	101,250	101,250	101,250
Total Benefits Per Period	0	738,212	738,212	738,212

DEPRECIATED ASSETS	**Pre-start**	**Year 1**	**Year 2**	**Year 3**
Software	40,000	10,667	0	0
Hardware	8,800	0	0	0
Total Per Period	48,800	10,667	0	0

DEPRECIATION SCHEDULE	**Pre-start**	**Year 1**	**Year 2**	**Year 3**
Software	0	8,000	10,133	10,133
Hardware	0	1,760	1,760	1,760
Total Per Period	0	9,760	11,893	11,893

EXPENSED COSTS	**Pre-start**	**Year 1**	**Year 2**	**Year 3**
Software	0	8,000	8,000	8,000
Hardware	0	1,760	1,760	1,760
Consulting	40,000	0	0	0
Personnel	5,063	0	0	0
Training	35,707	0	0	0
Other	0	0	0	0
Total Per Period	80,769	9,760	9,760	9,760

FINANCIAL ANALYSIS	**Pre-start**	**Year 1**	**Year 2**	**Year 3**
Net cash flow before taxes	(129,569)	717,785	728,452	728,452
Net cash flow after taxes	(89,185)	358,439	370,173	370,173
Annual ROI - direct and indirect benefits				**411%**
Annual ROI - direct benefits only				354%
Net present value (NPV)				853,922
Payback (years)				**0.25**
Average annual cost of ownership				56,505
3-year IRR				401%

FINANCIAL ASSUMPTIONS

All government taxes	50%
Discount rate	8%