ROI CASE STUDY
IBM BUSINESS ANALYTICS
COMPASS FOR SUCCESS

THE BOTTOM LINE

Nucleus Research examined the use of IBM Business Analytics to support analytical needs for school boards in Ontario. In addition to the financial benefits associated with improved school reporting and managerial productivity, Compass for Success also provided specific insight to better support the educational needs of low-achieving students.

ROI: **297%**
Payback: **4 months**
Average annual benefit: **C$1,370,654**

THE COMPANY

Compass for Success is a collaboration of more than 30 school boards in Ontario to improve data and information management with the express goal of improving student achievement. By providing support ranging from a data warehouse to defining key performance indicators and best practices, Compass for Success provides analytic support to translate student-based data into improved educational outcomes.

THE CHALLENGE

Compass for Success initially started in 2005 to support the needs of nine school boards in their compliance of Ontario's Managing Information for Student Achievement (MISA) initiative. To do so, they required a business intelligence tool and chose IBM as a market leader. In the first few years, Compass for Success focused on project-specific development associated with understanding academic benefits, starting with basics such as deciding which questions to ask and how to differentiate between analytics that support better decisions versus analytics that are interesting but not necessarily relevant.

> *"It's really about having conversations that you weren't able to have before, identifying low achievers who need help, and challenging students who haven't moved over time."*
>
> - Diane Findlay, Project Manager at Compass for Success

In addition, there were challenges in supporting school boards that had varying budgets and internal resources. Although large school boards with over 100,000 students often had some form of IT support, smaller school boards with only a few hundred students lacked the resources and skills to deploy analytics and receive the potential benefits associated with data-driven education. In these smaller school boards, principals and other school board officials were manually tracking graduation rates, homework patterns, and teacher uptraining opportunities, but it was a time-intensive exercise.

Cost : Benefit Ratio | **1 : 2.4**

THE STRATEGY

Although IBM Business Analytics has been the default business intelligence solution, Compass for Success saw an additional opportunity to support small and medium-sized school boards and give them access to key educational information. Compass for Success took advantage of its access to multiple school boards by building a centralized data warehouse for student data updated on a daily basis. This historical data source provides context for Ontario student performance to all Compass for Success members and is supported by a set of analytic tools that is also consistent. This allows Compass for Success member organizations to work with each other easily and to use consistent data modeling and report definitions.

> *"If you don't know which questions to ask, how good will the insight be? Not very good. Drive the questions based on what you need to know about students."*
>
> - Diane Findlay, Project Manager at Compass for Success

Compass for Success also provides consultative help above and beyond the technical support associated with business intelligence. They developed training cycles that were placed online to show school boards how to use data and support key education management conversations. These training and best practices resources allow school boards to use data more quickly and accurately. For instance, school boards could learn how to detect specific types of underachieving students who haven't improved over time. In addition, these boards could also see if problem students might be seeing the same teaching style repeatedly, since a consistent pattern of student deficits may indicate the need to uptrain the teacher on newer or more varied educational approaches.

Types of Benefits

Direct 29%   71% Indirect
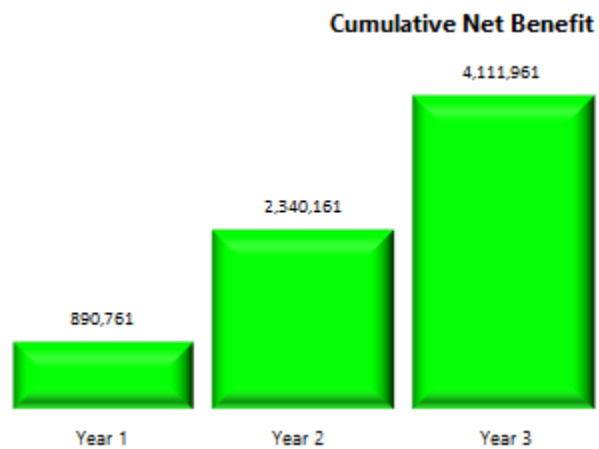
There was an opportunity to help school boards by moving analytics into the cloud. By creating a hosted cloud model, school boards could reduce their hardware, software, and support costs while maintaining access to the reports and data that have become vital. In addition, cloud also helps school boards to reduce the time needed to upgrade.

KEY BENEFIT AREAS

By providing analytics to school boards across Ontario, Compass for Success provided value in three key areas:

- System level board and system reporting. For reporting within each school board, Compass for Success saved an average of 10 working days per school board by accelerating the time needed to create and distribute accurate reports. In addition, each school board also needed to provide reports to the Ontario Ministry of Education. Over the entire breadth of 39 school boards, the time saved provided over C$180,000 in productivity.
- Improved school reporting. Within each school, business intelligence needs range from tracking truancy to the challenges of aligning school performance with efforts and resources. Across over 400 schools supported by Compass for Success, an average of four days per year were saved for business analytics leading to over C$660,000 saved each year.
- Principal productivity. Principals could save a day of work for internal school-level reporting with 30 reports. Scaled across the entire 400+ school breadth of Compass for Success, this time saved represents a million dollar productivity benefit.
- Cloud-based productivity. On average, the cloud solutions deployed in 13 school boards in 2012 resulted in the reduction of 1 FTE per school board. This reduced or avoided headcount will scale as more school boards move to the cloud with its managed service benefits.

Cumulative Net Benefit

Year	Cumulative Net Benefit
Year 1	890,761
Year 2	2,340,161
Year 3	4,111,961

KEY COST AREAS

Costs of the project included personnel, training, consulting, and cloud hosting costs in the third year of the project. Consultants from IBM Software Services for Business Analytics helped to both identify and deploy cloud services. Personnel used to support these efforts included software design, a Cognos developer, an assessment developer, a report developer, a data tester, and two database administrators over a three year period from 2010 to 2012. Training costs represent the cost of training school boards on analytics tools and usage.

Net Cash Flows

	Initial	Year 1	Year 2	Year 3
	(519,477)	1,410,238	1,449,400	1,771,800
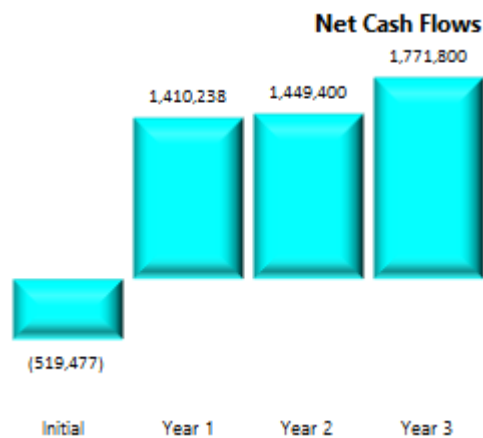
BEST PRACTICES

Supporting scalable analytics practices in the educational world requires more than simply deploying a data warehouse or acquiring software. Compass for Success took several key steps that were vital for providing analytics services to school boards.

- Translating analytic tools to academic benefits. Although Compass for Success had analytic experts who could show each school board how to use IBM Business Analytics as a technology, the true key to improving educational results was associated with the 360 review of the student based on the student's own behavior, the student's environment, and the tactics used by the teacher. By supporting the use of these analytic tools to increase visibility to student performance, Compass for Success allowed school boards and individual schools to spend more time on key educational issues rather than focus on finding and analyzing data.

- Moving to the cloud. Although Nucleus has seen that cloud-based projects average 1.7 times more ROI than similar on-premise projects, some companies are still reluctant to make the switch. However, for Compass for Success clients who moved to the cloud, there was an immediate payoff in productivity that far outweighed the cost of the cloud itself.

- Finding financial value from a governmental compliance initiative. Compass for Success could have tried to support schools as a fearmonger playing on educational

worries surrounding non-compliance. Instead, by providing a number of productivity benefits that allowed companies to increase insight without increasing headcount, Compass for Success turned a government imperative into a broader opportunity to create student successes.

CALCULATING THE ROI

Nucleus calculated the costs of software, hardware, consulting, personnel, and training over a 3-year period to quantify Compass for Success's investment in its deployment of IBM Business Analytics.

The productivity associated with improving reports has been modified with a productivity factor used to indicate that not every hour saved is directly translated into additional time worked. To account for the costs of changing work modes and the various utilization rates of various work environments, each reporting task was multiplied by a correction factor of 0.6.

FINANCIAL ANALYSIS

IBM Business Analytics - Compass for Success

Annual ROI: 297%
Payback period: 0.4 years

ANNUAL BENEFITS	Pre-start	Year 1	Year 2	Year 3
Direct	0	664,000	664,000	664,000
Indirect	0	1,432,200	1,432,200	2,097,800
Total per period	0	2,096,200	2,096,200	2,761,800

CAPITALIZED ASSETS	Pre-start	Year 1	Year 2	Year 3
Software	0	0	0	0
Hardware	0	0	0	0
Project consulting and personnel	0	0	0	0
Total per period	0	0	0	0

DEPRECIATION SCHEDULE	Pre-start	Year 1	Year 2	Year 3
Software	0	0	0	0
Hardware	0	0	0	0
Project consulting and personnel	0	0	0	0
Total per period	0	0	0	0

EXPENSED COSTS	Pre-start	Year 1	Year 2	Year 3
Software	0	0	0	200,000
Hardware	0	0	0	0
Consulting	0	0	0	0
Personnel	426,847	305,806	367,000	680,000
Training	46,681	81,027	77,000	10,000
Other	45,949	299,129	202,800	100,000
Total per period	519,477	685,962	646,800	990,000

| FINANCIAL ANALYSIS	Results	Year 1	Year 2	Year 3
Net cash flow before taxes	(519,477)	1,410,238	1,449,400	1,771,800
Net cash flow after taxes	(285,712)	775,631	797,170	974,490
Annual ROI - direct and indirect benefits				**297%**
Annual ROI - direct benefits only				-21%
Net Present Value (NPV)				1,930,930
Payback period				**0.4 years**
Average Annual Cost of Ownership				947,413
3-Year IRR				271%

FINANCIAL ASSUMPTIONS

All government taxes	45%
Cost of capital	7.0%

By the Numbers

Compass for Success's IBM Business Analytics project
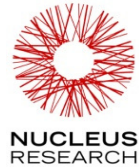
Annual Return on Investment **297%**

4.0 months

The total time to value, or **payback** period, for the project

Cost : Benefit Ratio **1 : 2.4**

C$1,370,654

Average annual benefit

THE PROJECT

Compass for Success deployed IBM Business Analytics to support small and medium-sized school boards across Ontario and give them access to key educational information. Nucleus found that providing analytics capabilities to these school boards improved school reporting and increased managerial productivity.

THE RESULTS

Increased Principal productivity
Improved school reporting
Reduced headcount by 1 FTE per school board

Number of **users:** 415

10 Days

Average time saved per school board by accelerating report generation for system reporting

"It's really about having conversations that you weren't able to have before, identifying low achievers who need help, and challenging students who haven't moved over time."

- Diane Findlay, Compass for Success Project Manager