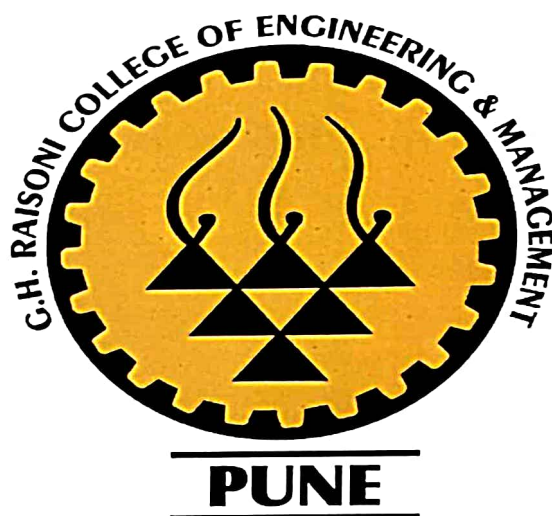


# **G H RAISONI COLLEGE OF ENGINEERING & MANAGEMENT WAGHOLI, PUNE**

**An Autonomous Institute, Affiliated to Savitribai Phule Pune University**



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## **Case Study: Hamilton County Department of Education Achieving record school graduation rates and helping students progress with predictive analytics.**

### **Introduction**

Professional development can be a chore. It can also be an inspiration, providing new skills and perspectives that can transform an organization's performance. Either way, it requires both employees and coaches to devote significant time and effort to the development process.

Hamilton County Department of Education (HCDE) wanted to know where its professional development dollars – and its teachers' valuable time – would best be invested. The answer came from analytics, and the results are helping the County raise teaching standards, drive student progress and performance, and achieve record-high graduation rates.

## **Overview**

### **The need**

Some of the issues like High drop-out rates, poor governance and lack of responsibility, quality of teachers, wastage of resources and limited funds available, public schools must invest their professional development dollars wisely. How could Hamilton County decide which activities would most benefit its teachers – and its students?

### **The solution**

The purpose of Business Intelligence (BI) software is to help the firms on acquiring knowledge about highlights and dangerous trends, to observe the connections and to forecast the future market evolutions. By extending its highly successful analytics program, the County used data-mining and text analytics to assess different types of teacher training against subsequent student progress and performance.

### **The benefit**

BI system has a powerful impact on strategic decisions quality and is able to reduce the necessary time and thus these systems have the ability to allow managers to view data in different perspective in order to discover new factors that affect institutes process and also to anticipate and forecast changes inside and outside the institute. Thus, this improved teaching methods contributed to a record-high 84.5 percent graduation rate in 2013. The County was also rated in the top 5 percent for performance and the top 10 percent for progress, state-wide. Also drop-out rates were 10.3% while average drop out rate in US was 13.18%.



## **Software Solution Components**

- IBM® Cognos® Business Intelligence
- IBM SPSS® Collaboration and Deployment Services
- IBM SPSS Data Collection
- IBM SPSS Modeler
- IBM SPSS Statistics
- Esri Maps for IBM Cognos

## **How This Helped Students...**

As the fifth-largest K-12 school system in the state of Tennessee, HCDE oversees 79 schools. HCDE's 6,700 employees work towards a common goal – helping all 43,000 students in the District of Hamilton County succeed by reaching graduation and moving into postsecondary education, the workforce, or alternative training.

Over the past five years, HCDE has enthusiastically adopted IBM analytics technologies, which it uses to track student performance and provide teachers, social workers, and administrators with the insight they need to predict when students are at risk of underperforming or dropping out, and proactively intervene.

Dr Kirk Kelly, Director, Accountability and Testing, Hamilton County Department of Education, comments: "Since we began with analytics, we have seen a rise in graduation rates of 13.6 percentage points.

"But we are not done yet. We see analytics as an ongoing journey, and we are constantly working to introduce new capabilities. The first phase was predictive modeling of student performance. Then we moved on to giving all 3,600 teachers and administrators access to that student performance data via dashboards on their iPads or Android tablets. And now we are using text analytics and data-mining techniques to look at professional development too."

## **The Overall Result**

These enhancements in teacher training, combined with HCDE's existing analytics-led approach to continuous improvement, have contributed to a record year for the County. It is now rated in the top five percent of Tennessee school systems for performance (which is a measure of overall student attainment), and in the top ten percent for progress (which is based on overall growth rate).

"Schools that reach the top five percent for either performance or progress are designated by the State of Tennessee as 'Reward Schools'," explains Dr Kelly. "Last year we had six Reward Schools in Hamilton; this year we have 14, which makes us the fastest-growing county in the State."

HCDE also achieved a 1.8-point improvement in graduation rate this year, taking it to a record 84.5 percent – the highest in the County's history.

"We're so proud of what we have achieved – not just in the past 12 months, but over the last five years," comments Dr Kelly. "Analytics has played a major part in our success, and we are keen to continue that trend by introducing new and innovative types of analysis."

"Our next project is to introduce location analytics, which will open many possibilities. For example, we have a lot of hills here in Hamilton, and we are not well equipped to handle snow. We want to combine mapping technology with data from the Department of Transportation to look at road closures and make better decisions about whether schools need to be closed. We also foresee benefits for zoning schools, to make sure we are treating students fairly when we change the boundaries between schools."

He concludes: "It is an exciting time to work in educational analytics. We are looking forward to building on our partnership with IBM and pushing the boundaries for analytics in the public-school sector."



## **Conclusion And Future Direction**

Business Intelligence (BI) is a moderately new part of learning investigation which rose because of the developing interest for self-composed, organized, and deeprooted learning with real time problems. BI manages to take in information gathered from different learning situations and settings, investigated with a scope of real time situations and past behavior. This assorted variety in various components of BI is a test which should be tended to by embracing a customized learning model. Current executions of BI depend on a predefined set of inquiries and pointers which needs more appropriate data with regards to student and teacher. This can compare scenarios, anticipate potential threats and opportunities, better plan, budget and forecast resources, balance risks against expected returns and work to meet regulatory requirements. By making analytics widely available, organizations can align tactical and strategic decision-making to achieve business goals.

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