



# A Proven Methodology for Improving District Efficiency CASE HISTORIES

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**T**his paper documents the results of the author's experience using data-driven tools and strategies to help school districts improve operating efficiency and organizational effectiveness.

Best practice-based improvement methods such as continuous improvement, Lean and Baldrige have been used outside of education for decades. Practitioners and authors familiar with these methods state that these methods can lead to improvements as high as 30% or more. Improvement tools, such as measurement, benchmarking and analytics, are foundational to these approaches. Growth in the use of data has been exponential as technology has enabled the use of data in business intelligence, analytics and, now, big data. These developments have enabled data-driven organizations to accelerate improvement, innovation and efficiency in fields as diverse as medicine, manufacturing and athletics.

In general, all these systems have the following in common:

- A framework for evaluating performance;
- Measure of internal efficiency and quality;
- Detailed benchmarks or standards for comparison;
- Analytical methods that draw meaning and insights from the data;
- Reporting tools that make it easy and efficient to use data;
- Data that is detailed enough to point to controllable actions or decisions;
- A process that promotes continuous improvement and learning.

EnLit was designed to bring these same capabilities to school districts by integrating best practices, analytical tools and experience into one tool. Our tool's effectiveness is enhanced because we build in measures that assess known sources waste, inefficiency and savings in education. This paper documents the development of EnLit, and results using EnLit's process and tools to improve the efficiency and quality of district operations. Examples within a district, county and across state boundaries are used.

## A Full Scale Test Using Data-Driven Methods

My experience in education started when I left a management position with a major energy company to lead an initiative to improve efficiency in a large urban district. When I arrived, I found that leaders believed that the district was operating as efficiently as possible. Labor relations were poor, operating costs were high, performance was marginal and the media wanted services outsourced. Much of management's time was spent on fire fight and complaints rather than improvement. No information was available on performance, costs, efficiency or data needed to prioritize and focus improvement efforts.

Despite those hurdles and resistance, we analyzed existing data and identified several areas of opportunity that would produce lasting value for the district. Within a 3 year period, focus efforts, supported by data, to improve these areas paid off with cumulative savings of \$17 mm. Success led to the development of a management - union council that was established to sponsor and train teams in the use of data-driven methods to diagnose and solve serious internal safety issues. Eventually, almost 400 employees were working on dozens of sanctioned improvement teams. Department leaders initiate their own innovations in technology services, textbook management, process improvements and more.

As the district's financial situation stabilized, levies were approved and programs and services that benefited students were added. The business community, tax payers and media took notice and once again began to support the district. Within several years, a wide range of improvements had been attained that most thought impossible. These include:

- Cumulative savings of \$17 mm that did not harm education within three years (Figure 1)
  - A \$1.6 mm/year reduction in the food service operating loss;
  - \$800,000 reduction in cash tied up in business, textbook and other inventories;
  - Reduced the number and cost of copy machines and copying at all schools;
  - Redesigned the text book management process and saved over \$100,000/year.
- Improved Human Resources and Labor Relations
  - 15% reduction in sick leave use;
  - 85% reduction in grievances;
  - 18% reduction in sick leave use;
  - 50% reduction in the cost of workers' compensation.
- Improved Operating Performance
  - 90% improvement in transportation start up performance;

- Increase awareness of costs and need for cost control;
- Streamlined human resource, purchasing and work order processes.

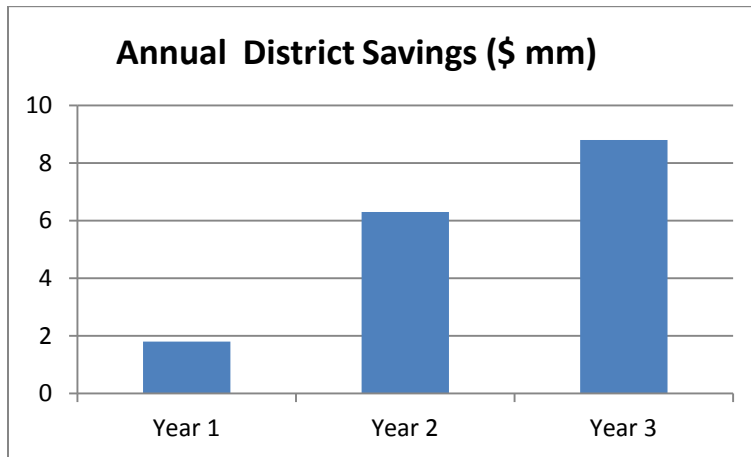


Figure 1

## Lessons Learned

Hands on experience proved that data-driven methods, along with leadership, could be used to improve the efficiency and quality of district operations and processes. Key lessons learned from the experience include:

- Saving opportunities exist throughout districts; traditional methods miss most of them;
- If it isn't being measured, it's not being managed;
- Efficiency is not a default setting for any organization; it must be managed to be controlled;
- Educational productivity can be improved;
- Data is a powerful tool that leaders can use to get the most value for their educational dollars;
- Costs can be reduced through the use of data, focus and problem solving;
- Front line employees can be willing participants in cost saving efforts;
- Use of data-driven methods and a focus on improvement can create a high performance culture.

The author developed the concept for the Enlīt system as he was leading this initiative. Enlīt was developed to give school leaders four powerful tools:

- A system that would make it easy to use data to assess, improve and control performance;
- An internal measurement system for assessing efficiency in all areas;
- A benchmarking database and network for comparing and learning from peers;
- Reporting tools that would make it easy to see the link between spending and performance.

## Expansion to 50 Districts in Two Mid-Western States

Enlīt was launched in mid 2010 and since that time as been used in over 80 districts in 12 states. Clients range in size from 1,100 to over 22,000 students and are located in urban, suburban and rural environments. In most cases, our clients have been higher performing districts that continuously look for ways to improve efficiency and have made progress in the use of data in the classroom.

Data was collected and analyzed from 50 districts between 2010 and 2013. Each district provided a set of data using data definitions provided by Enlit. Data were reviewed for quality purposes and loaded into the Enlit software and analyzed. Results from each district were aggregated into a peer group from which benchmarks are calculated. Cost savings were calculated by comparing the efficiency of each district to the group peer average and high performing district or quartile. Performance gaps, the difference between the district and the average or upper quartile, were multiplied by the appropriate factor such as square footage for facilities, miles driven for transportation and meals served for food service.

Table 1 below shows operating cost savings that were determined by comparing district performance to the peer average and higher performing peers in 4 peer groups.

Table 1 - Operational Savings

	Facilities	Food Services	Transportation	Total
Ohio Average	\$ 116	\$ 25	\$ 34	\$ 175
Ohio Upper	\$ 203	\$ 66	\$ 74	\$ 342
CTC Average	\$ 215	\$ 25		\$ 240
CTC Upper	\$ 527	\$ 43	\$ -	\$ 570
<b>Average</b>	<b>\$ 265</b>	<b>\$ 40</b>	<b>\$ 36</b>	<b>\$ 332</b>
E. Michigan Average	\$ 26	\$ 8	\$ 28	\$ 62
E. Michigan Upper	\$ 115	\$ 20	\$ 60	\$ 196
W. Michigan Average	\$ 54	\$ 22	\$ 20	\$ 96
W. Michigan Upper	\$ 144	\$ 38	\$ 53	\$ 235
<b>Average</b>	<b>\$ 85</b>	<b>\$ 22</b>	<b>\$ 40</b>	<b>\$ 147</b>

## Highlights

- On average, the software and process identified savings of between \$147/student in Michigan districts and \$332/student in Ohio districts. We believe the Michigan districts showed less cost savings because of the quality of the districts.
- Ohio districts savings averaged \$175/student when compare to the average peer and over \$340/student compared to the upper quartile of performers.
- Career tech programs showed even higher cost savings potential when compared to their own peer groups with a range of \$240/student to \$570/student.

## Facilities

Our data show that the facility costs per square foot can range from as much as 50% above the average to 35% below the average. Facility cost savings identified in Midwest districts range from a low of \$26/student in Eastern Michigan to over \$200/student in traditional districts. Career tech operations showed even more savings potential.

- Sources of savings including custodial and maintenance staff; energy; vendor services, supply use and others. Major differences exist in custodial and maintenance productivity and allocations, supply use, contract service fees, energy management and more.
- A 4,800 student district was spending \$mm more on facilities than peers. We showed the district where and how to reduce costs.
- The difference between a well and poorly controlled facilities supply use can be as much as \$50,000/year for a facility with 500,000 sq. ft.

## Food Service

We identified on average \$22/student in Michigan operations and \$40/student in Ohio districts. Savings range from as low as \$8/student to as much as \$66/student.

- Sources of savings include compensation, productivity, meal costs, pricing and other factors. These savings do not include other areas that we have identified including inventories levels, waste reduction and others.
- High levels of food service waste can cost tens of thousands of dollars per year for small districts are far more for larger districts.

## Transportation

Transportation requires a significant investment in equipment, maintenance and operations. More importantly it can be one of the most difficult to manage. Enlit has helped clients discover between \$40/student and \$74/student.

- Saving sources include higher bus utilization, fuel efficiency, maintenance staff levels, parts inventories, maintenance staffing and routing.

## Other Lessons Learned

### Information Systems and Technology

Information systems and technology are probably one of the most challenging areas to analyze, control and improve. Our research has, however, show relationship to a number of factors associated with the type of infrastructure. Understanding these factors is key to controlling technology capital and operating costs.

- Office equipment utilization can vary by a factor of 2 or more. Districts that tightly control allocations can save from tens to hundreds of thousands of dollars per year.

### Purchasing and Supply Chain Management

Most districts do not have the purchasing staff that is needed to manage the wide array of contracts for supplies and services used by the districts. Clients that use this service discover savings in supplies, contractor services, technology, workers compensation, and telecommunication costs and more.

- The difference between a well and poorly controlled building supply use can be as much as \$50,000/year for a facility with 500,000 sq. ft.

- Our analysis correctly identified that a technology contractor was costing a district almost twice the in-house cost for an estimated savings of \$100,000/year.

### Efficiency is not Always Related to Size

Many of our possible clients believe that they need the exact same districts from their locality and size for comparisons. Figure 2 shows that, across a wide range of districts, custodial productivity is independent of size. Figure 3 shows that the number of computers managed per IT FTE is unrelated to size. Our data shows that it is more dependent on factors such as infrastructure, technology intensity and equipment age and possibly teacher training.

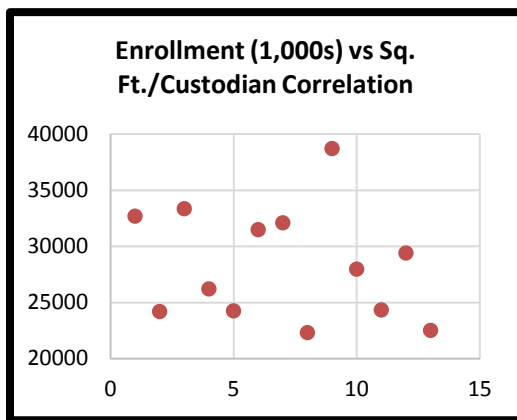


Figure 3

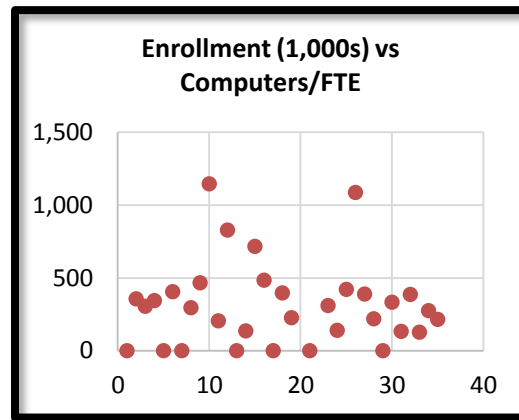


Figure 4

### Adapting Transportation Practices of Higher Performing Districts Worth of \$100K - \$375K/Year per District

Enlīt, LLC was retained to evaluate the transportation operations of 13 districts in Ottawa County, Michigan. Enlīt, LLC recommended the project as an alternative to out-sourcing that was being driven by the state legislature. The evaluation was designed to 1) assess transportation department efficiency, 2) identify high performers and best practices, and 3) determine the potential cost savings if all districts adapted a common set of operating practices used by high performers. A key assumption was that we would find high, average and low performing districts.

Enlīt, LLC staff worked closely with the 13 transportation directors to evaluate transportation efficiency and practices. Site visits were made to each location and directors answered questions on their practices and operations. Enlīt's transportation evaluation tool was used to analyze individual department and peer group results. Additional analysis was done to evaluate possible links between operating practices and efficiency.

Results from that assessment generated considerable insights that would have missed without the use of Enlīt's data-driven tools, benchmarking and sharing of best practices. Key outcomes of this study are summarized below.

- Operating costs (Figure 5) for within the same county showed wide variation.
- The highest cost district's efficiency was 33% below average and half that of the top performer.
- The highest performing district's operating cost was 50% below the peer average.
- The two highest performing districts reported the highest best practice scores (Figure 6) in the group. Both of these managers had reputations as effective, innovative managers.

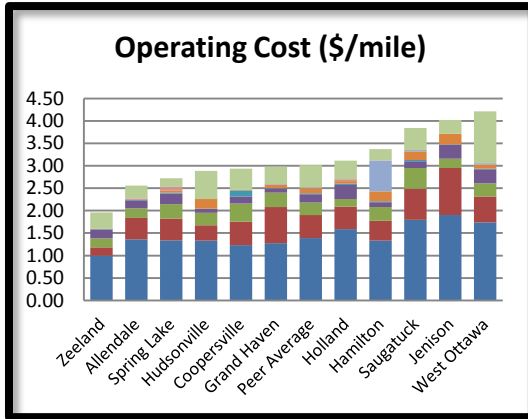


Figure 5

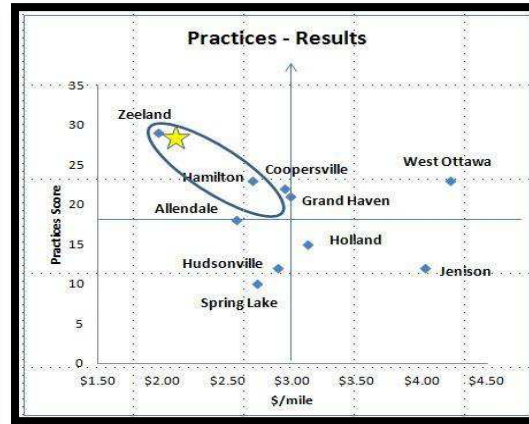


Figure 6

- The lowest cost transportation departments had the highest administrative costs (Figure 7). Additional administrative costs were far offset by higher operating efficiency.
- As a group, these districts could save almost \$1.4 mm/year by achieving average efficiency.
- Savings would be \$4.5 mm/year if the districts performed at the highest efficiency levels.
- Savings per district would be \$117,000/year if average performance was attained.
- Savings per district \$375,000 if high performance was attained. (Figure 8).

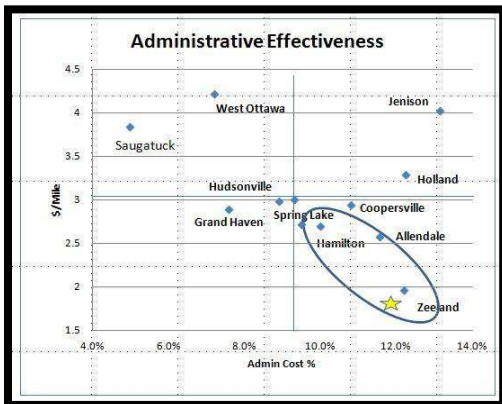


Figure 7

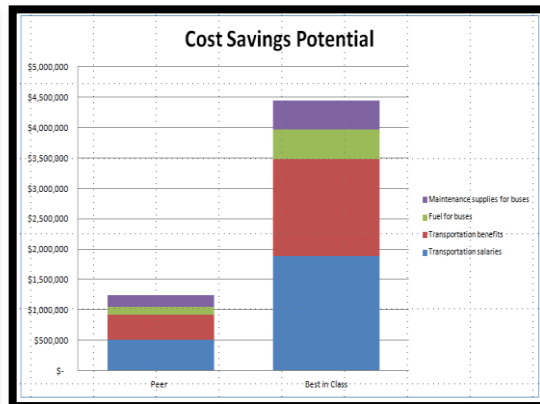


Figure 8

## Key Improvement Opportunities

Examples of key factors behind the differences included:

- Maintenance costs that ranged from \$0.25/mile to an average of \$0.50/mile and high of \$1.10/mile;
- Wide range in fuel efficiency, prices paid for fuel and fuel costs/mile;
- More efficient use of buses with a larger number of runs per bus;
- Wide ranges in driver compensation within the same county;
- Major differences in bus utilization rates;
- Wide range in the use of best practices that raise efficiency.

## Conclusions

The Enlit methodology, software and process have proven to be effective in identifying operational cost savings at a district, functional and peer group level. Average savings in operational areas alone range from \$147/student to over \$330/student. The low end of savings was \$62/student while the high was a \$570/student. These results not include the impact of educational, central service, purchasing, information systems, absenteeism, service/supply based savings and others.

Key elements of the Enlit system that were used in each of these examples include:

- Balanced scorecard framework with multiple perspectives on performance;
- Highly efficiency process that simplifies data collection, analysis and reporting;
- A performance measurement system that accurately captures efficiency and effectiveness;
- Integration of best practice based methods including Baldrige, Lean and the Balanced Scorecard;
- Measures, based on experience, that can be used to make real world changes in operations;
- Benchmarks that provide a standard for comparison;
- Linked measures help users quickly see the link between spending and operational details.

The results also demonstrate that:

- Nearly all districts have strengths and weaknesses;
- High performance operations do exist and their costs are well below that of peers;
- Districts can save considerable resources by emulating more efficient operating practices;
- The Enlit system and process accelerates both learning, improvement and savings;
- Traditional systems do not provide the deep insight

Enlit's software, process and experience enable leaders to easily identify and prioritize improvement efforts, accelerate the improvement process, and improve efficiency and quality. Continued use of the tool has proven to help leaders achieve continuous improvement in cost and quality and create higher performing organizations.