A **Softrol Systems** White Paper

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Return On Investment for Production Information Systems in the Textile Services Industry

The Softrol

"Information Stimulus Package"

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EXECUTIVE SUMMARY:

BACKGROUND

Welcome to 2009, where the game has changed and ***ONLY THE STRONG WILL SURVIVE!*** Today's marketplace has tracked into an uncharted area and the rules of engagement have definitely changed. After 10 years of increasing revenue the Textile Rental Service Industry is now looking at declining sales with increased pressure on operating margins. This business environment will test the skills of management in controlling key cost areas utilizing improved process control in an environment of declining revenues.

Managers must answer the question of *how, when and what action* can be taken to maintain competitiveness in this changing market. The good news is that over the past decade textile costs have been dropping and many managers have automated their plants to improve plant and labor efficiency.

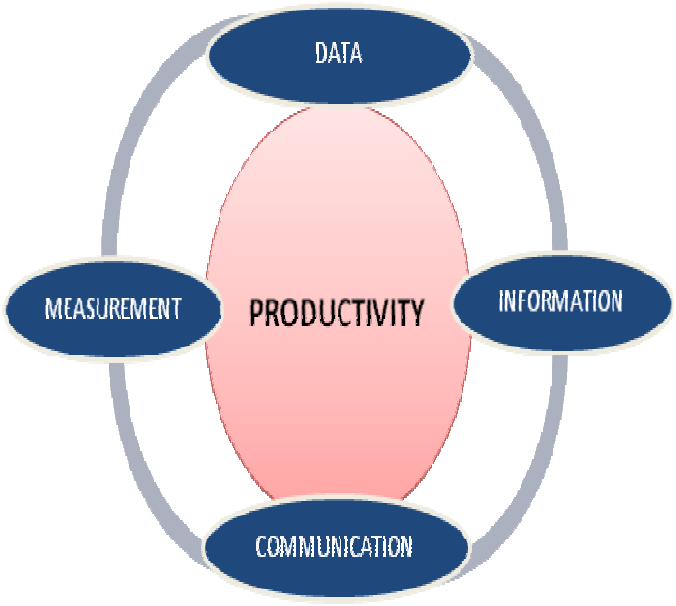
REPORT FINDINGS

Plant Performance

When it comes to plant performance, productivity is the largest differentiator from Best in Class to Straggler (Laggard). Increasing productivity is achieved by improving throughput, reducing cycle time, controlling labor and delivering a high fill rate. To effectively manage these Key Performance Indicators, management must have accurate data which is converted to *actionable information* and *communicated* to the operator to improve practices.

This continuous improvement in Process Control requires the following conditions:

- **Data** – should be simple, accurate and timely.
- **Information** – data needs to be analyzed and converted to actionable information.
- **Communication** – the actionable information needs to be communicated to the decision maker to correct and improve processes.
- **Measurement** – productivity performance should be captured in real-time and be a Key Corporate Metric as a driver for continuous improvement.



Operational Excellence

There are three key factors to achieving operational excellence in order to remain competitive in today's market.

- **Improving Plant Productivity** - reducing textile production time which is accomplished with a combination of automation, controlling Work in Process (WIP), reducing bottlenecks, optimizing equipment and increasing employee productivity. This requires information and real-time visibility of operations to verify that the employee and equipment are performing to standards.
- **Real-time Production Monitoring** - management needs the capacity to have visibility of real-time production information to make ***better decisions faster*** for optimizing plant operations and ensuring maximum throughput.
- **Investment Analysis –** an investment decision requires consideration of the Time Value of Cash and the criteria to evaluate capital investment and measure the returns.

Capability Assessment

Best in Class Manufacturers share some common characteristics:

- Twice as likely to have ***real-time visibility*** into production and on-time deliveries as laggards.
- 30% more likely to have ***automated data collection*** than laggards.
- 51% more likely to have ***standards and measure performance*** across plants than laggards.

Call to Action

TAKE ACTION OR WATCH: Today, it could be business suicide to wait for sales to return and plant costs to drop.

ACTION INCREASES PROFIT: Superior Linen (Tacoma, WA) implemented a Production Information System and achieved a **6 month payback** by reducing **straight time (*10%), overtime (80%) and nine (9) full time employees***

ACTIONS:

- ***Plant Scorecard*** – objective grading of your current operations and productivity. It may require tapping into outside resources (vendors, associations or alliances).
- ***Business Case*** – use the Scorecard to develop a plan and projected return on cash. Focus on quickest return on investment!
- ***Investment Decision*** – preserve capital and negotiated with information vendor for alternative purchasing options. Today, nothing is off the table and vendors will consider leasing, payments and share gain programs.

SETTING THE STAGE:

PRODUCTIVITY MEASUREMENT

Productivity is a key factor for increased profitability and return on assets which improves shareholder returns, wages and competitiveness.

In basic terms, productivity is how efficiently inputs are transformed into outputs. Measuring and quantifying the impact of information is difficult because of the variety, consistency and accuracy of three dimensions:

- Unit of analysis
- Measurement of input
- Measurement of output

The Textile Rental Service Industry has multi-factors that can impact these measurements resulting in a large disparity in productivity measurement within the same firm, geography and business sector. This is largely due to a wide variance of textile mix, facilities infrastructure, and the level of automation which distorts the input and output data.

An example would be measuring labor productivity with single inputs (total labor costs versus total sales revenue) resulting in a percentage of labor to revenue. This does not account for market labor cost, automation, market revenue per piece and/or actual piece production per hour. To minimize the effect of multiple inputs it would be recommended to measure productivity in pieces or pounds per operator hour and index different levels of plant automation.

QUICK TAKE AWAY

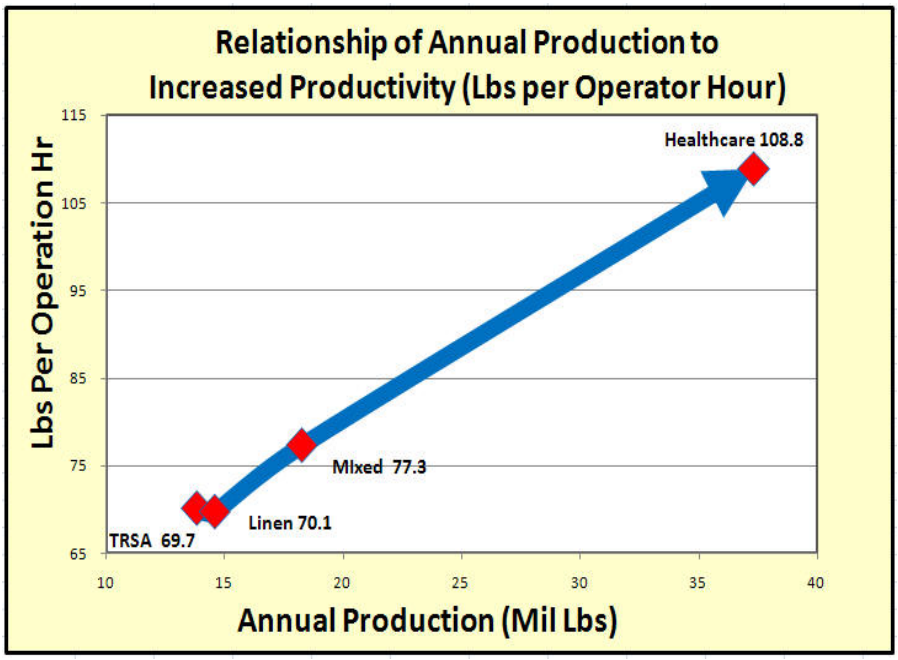
Productivity is Key to maintaining competitiveness, however, it is difficult to measure due to different:

- ***Levels of automation***
- ***Textile mix***
- ***Input measurement (pieces, pounds, hours)***
- ***Output measurement (% to Revenue, PPOH)***
- ***Revenue pricing variance***
- ***Labor Cost variance***
- ***Lack of Industry Quality Standards***

PRODUCTIVITY ANALYSIS IN THE TEXTILE RENTAL INDUSTRY

The challenge of factoring in multiple inputs has forced managers to analyze plant productivity based upon their historical plant trends and, therefore, not accessing industries best practice. As Textile Cleaning (recycling) is a sequential process, it is difficult to look at total plant productivity and make any assessment on productivity improvements. Improvement in productivity requires analysis by department to identify changes in practices which will increase productivity. Implementation of correct standards, verifying that the equipment/operator is operating at the expected rate and the availability of goods to be processed are all required to maximize productivity.

Although the industry is not data rich the Textile Rental Service Association (TRSA) has compiled some trends which if interpolated provides some basic productivity benchmarks by sector. The data would indicate that the high volume operator gains significantly in production per operator hour due to increased plant automation and plant infrastructure.



Source: TRSA, 2008 Industry Performance Report, (Author Interpreted)

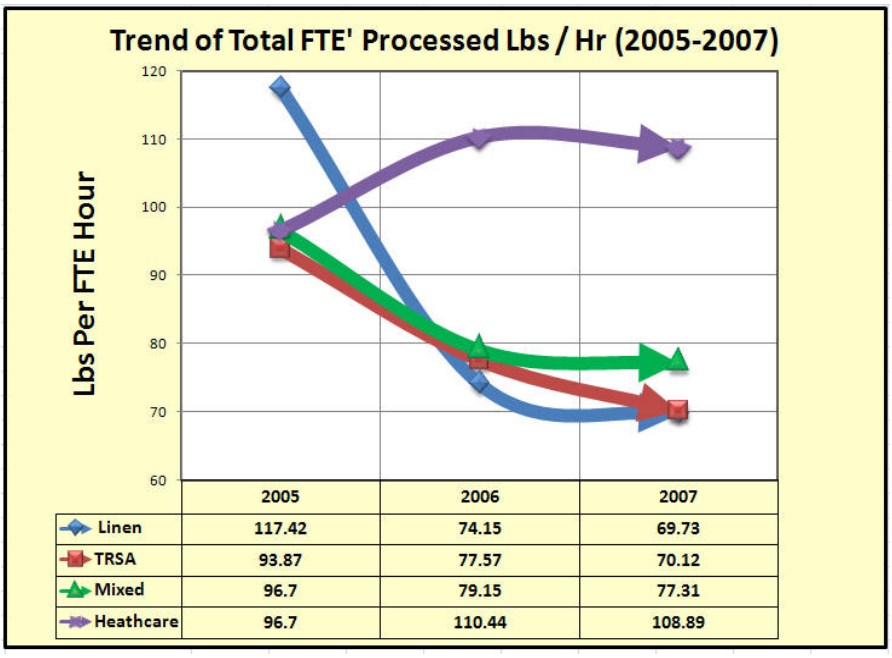
QUICK TAKEAWAY

TRSA Research shows

- ***Higher Production Volume increases PPOH***
- ***High Profit companies produced > 13% higher PPOH than Typical TRSA with 30% less poundage***
- ***Industry Productivity per FTE is Flat and not keeping pace with US manufacturing***

One historical trend which is of concern is the TRSA data indicating that productivity per FTE is decreasing in the Textile Service Industry.

The Healthcare Sector is the standout for increasing productivity from 2005 thru 2007. George Ferencz (TRSA) states that "this improvement represents significant investment by that sector into improving operations, including in IT, which is why they are seeing better productivity numbers. However, on the Linen side and typical mixed plants, there has been less investment and therefore the trend is downward."



	2005	2006	2007
Linen	117.42	74.15	69.73
TRSA	93.87	77.57	70.12
Mixed	96.7	79.15	77.31
Heathcare	96.7	110.44	108.89

Source: TRSA, 2008 Industry Performance Report, (Author Interpreted) Note: This data may not by statistically valid because different firms participate from one year to the next.

It should be noted, that for the Textile Rental Service Industry to keep pace with the US Manufacturing Industry it would need to increase productivity 3% year over year[1]. US manufacturing has a sustained 3 – 4% annual productivity increase since 1990 and significant productivity improvement over the last 50 years. [2]

DATA, INFORMATION, KNOWLEDGE, AND COMMUNICATIONS TECHNOLOGY

Productivity measurement already includes information investments in computers, automation, schedules, standards and a variety of other process control and transactional systems. The task facing management is to evaluate the *incremental investment* in information services and *measure the resultant improvement in productivity.*

Term Definitions:

- **Data** – facts, numbers, counts and instructions.
- **Information** – data that has been collected, organized, processed, and stored for action or use.
- **Knowledge** – cumulative information that has been collected, stored, analyzed and converted to intelligence.
- **Information and Communication Technology (ICT)** – ICT is merging of communications and computing which includes: hardware, software, networks and information systems. ICT is the means that information is communicated which produces improved practices. It has been proven that investment in ICT does stimulate productivity increases:
  - *2001 Economic Report of the President* reports that ICT intensive industries averaged annual labor productivity growth of over 3 percent compared to the 1.6 percent pace of non-farm economy (Economic Report of the President, 2001)
  - *Census Bureau's Center for Economic Studies* shows that 50 Percent of the U.S. manufacturing that have computer networks have higher productivity than manufacturing establishments without networks (Economics and Statistics Administration, 2003)

QUICK TAKEAWAY

Data must be…

- ***Simple***
- ***Fast***
- ***Accurate***
- ***Actionable***

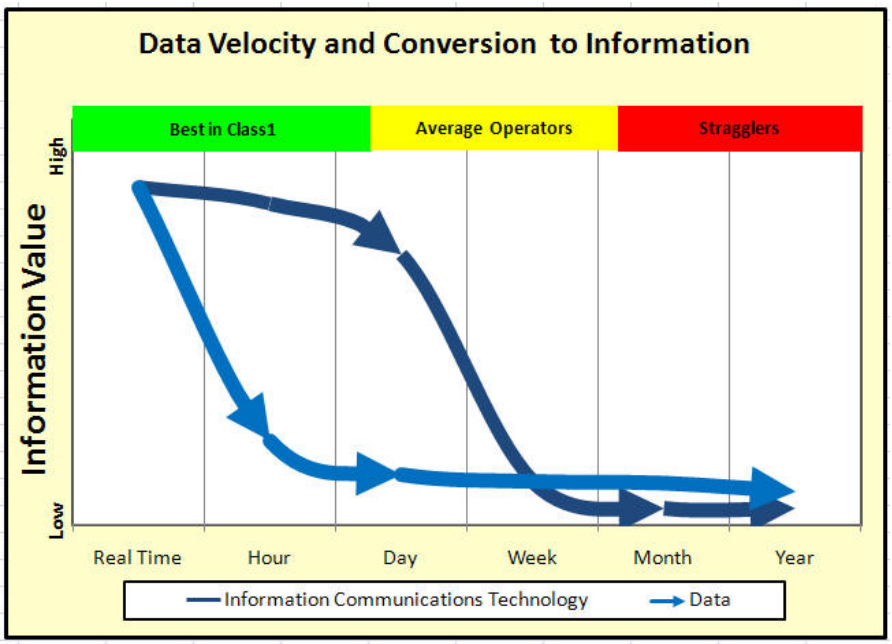
… to have best value!

1. Source: Bureau of Labor Statistics. National Bureau of Economic Research
2. Source: A. Corbet and G. Wilson, "Comparing 50 years of labor productivity in U.S. and foreign manufacturing, "Monthly Labor Review, June 2002, pp 51-65.

Criteria required for high value information:

- **Quality Data** – the data must be *accurate, reliable and consistent* to produce actionable information to add value.
- **Data Age** – data *velocity* incrementally increases the information value.
- **Data to Information Conversion** – data must be *converted to information* and then *communicated* effectively and efficiently to improve practices.

Best in Class have high quality data with effective conversion to action:



QUICK TAKEAWAY

Converting Data to ACTIONABLE information requires:

- ***High quality, accurate & consistent data***
- ***Data Age deteriorates Information value***
- ***Information must be Communicated (ICT) to improve practices***

Source: Softrol Systems Inc., "Data Half Life a Qualitative Analysis" Chad Keith, 2006

BEST-IN-CLASS PERFORMANCE

- **Comparative Industries Analysis**

  The cleaning of textiles (Plant Processing) in the Textile Rental Service Industry has many similar traits of a typical Process Manufacturing plant. For the purpose of examining best practices during the textile cleaning (recycling) production stage, it would serve us to examine not only practices within the Textile Rental Services Industry but also the Processing Manufacturing Industry.

Table 1: Pressures, Actions, Capabilities, Enablers (PACE) defines strategy to improve Plant Operations

Pressures	Actions	Capabilities	Enablers
Need to reduce Cost of Production	• Synchronize operation performance with corporate objectives • ***Increase capacity via optimizing production*** throughput • ***Integrate scheduling software***, WIP, ERP	• ***Standardize processes*** optimizing operational performance • Cross functional improvement teams • Factory floor data is delivered as ***actionable intelligence*** • Executives have ***real-time visibility*** into manufacturing performance • Performance can be compared across plants	• Data Analytics (Dashboards) • Advance process Control • ***Automated controls*** to minimize off-spec material and optimize grade transition • SCADA, Statistical Process Control (SPC), Human - Machine Interface (HMI) • Production Systems – Lean/ Kanban

QUICK TAKEAWAY

Strategies to improve operations are:

Actions

- ***Optimize Production***
- ***Integrate Software***

Capabilities

- ***Standardized Processes***
- ***Actionable intelligence***
- ***Real-time visibility***

Enablers

- ***Dashboards***
- ***Automated Controls***
- ***Production Systems***

Sources: Aberdeen Group , "Lean Scheduling and Execution", Matthew Littlefield, 2007, and "Operational Excellence in the Process Industries", David Fonzi, 2008. (Authors Interpreted)

♦ Best In-Class Performance Scorecard

The measurement of the above pressures, actions, capabilities and enablers varies between Best in Class and Laggards as shown in Table 2 below:

Table 2: Process, Organization, Knowledge, Performance Management and Control Systems

QUICK TAKEAWAY

Best-in-class are 25% more likely to have:

- ***standardized measurement***
- ***automated data collection***

Best in Class are 50% more likely to:

- ***measure performance across plants***
- ***provide executives with real time visibility into production performance***

	Best-in-Class	Industry Average	Laggard
Process	**Standardized measurements** of KPI's across enterprise		
	58%	53%	43%
Organization	Cross Functional teams responsible for improving performance		
	73%	62%	52%
Knowledge Management	Executives have **real-time visabiltiy** into the plant performance		
	60%	32%	30%
	Automated data collection		
	81%	64%	61%
Performance Management	Real-time Non-conformance alerts used in decision making		
	55%	40%	34%
	Performance can be compared across plants		
	81%	52%	39%
Control Systems	HMI / SCADA/ SPC		
	80%	62%	61%
	Control / Production Systems		
	70%	58%	48%

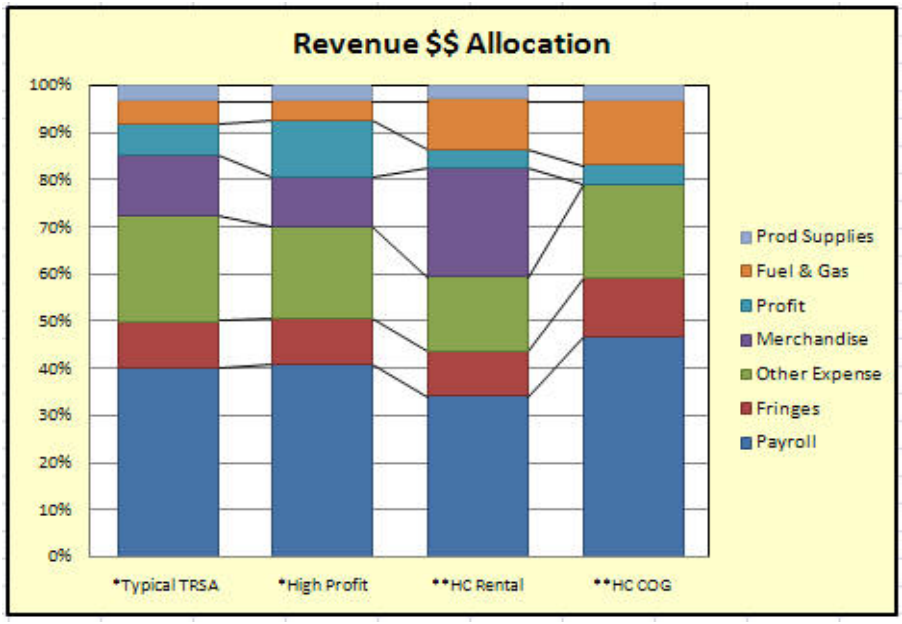
Sources: Aberdeen Group , "Lean Scheduling and Execution", Matthew Littlefield, 2007, and "Operational Excellence in the Process Industries", David Fonzi, 2008. (Authors Interpreted)

RETURN ON INVESTMENT:

In business TODAY, cash is king and the trend to avoid risk is resulting in reduced capital money for plant or operations improvement. So, it is critical to evaluate the criteria for investment decisions. These conditions do not excuse or relieve the reality that to remain competitive, operations will need to increase productivity and maintain or improve quality. Today, management must make the best choices for the company which will provide the expected return and/or yield. One of the key investment questions is - Should *we invest in capital equipment (trucks, washers, dryers) or information systems (route accounting, hand-held's, labor, and production)?*

INDUSTRY REVENUE AND EXPENSE ALLOCATION

First and foremost, what are the key costs centers that can be managed and controlled, and therefore a priority? The TRSA research identifies that ***Payroll and Fringes*** are the largest consumers of the company's revenue.



QUICK TAKEAWAY

Payroll and Fringes consume:

- ***50% of total revenue in the Typical TRSA and High Profit Plants.***
- ***59% of total revenue in a Healthcare COG Plant***

* Source: TRSA, 2008 Industry Performance Report, Mackay Group, 2008 (Author Interpreted)
** Source: 2006- 2007 Comparative Operating Revenues and Expense Profile, Phillips & Associates, Glen Phillips, 2008 (Author Interpreted)

The fact is that wages and salary costs are crucial in managing total costs. The Mackay Research Group stated "*for the typical operator, most of the effort in controlling operating expenses should be aimed at wage and salary costs. Other expense factors, such as production supplies merchandise costs, etc., should also be considered since they are substantial in the aggregate. However, from a planning point of view, they are* ***secondary*** *to controlling wage and salary costs*.[3]"

[3] Source: TRSA, 2008 Industry Performance Report, Mackay Group, 2008

TOOLS FOR INVESTMENT DECISION

In evaluating the next step in considering investment opportunities, managers must select what criteria should be used to determine if the decision meets the financial targets. For example, should the project return 20% on the investment, or have a payback period of less than three years?

To assist in evaluating investment alternatives there are several tools of analysis in use today, including payback, Internal Rate of Return, Net Present Value and Simple Rate of Return. For the purpose of this discussion we will review two of the most common: Payback Method and the Marginal Internal Rate of Return.

QUICK TAKEAWAY

MARGINAL INTERNAL RATE OF RETURN

Pros

- ***Uses all Cash Flows***
- ***Ranks Criteria for multiple Projects***
- ***Annualizes compounded return rate of investment***
- ***Simple Decision Analysis***
- ***Assesses Long Term Value – protecting share holder interests***

Cons

- ***Does not capture Scale of different projects***

QUICK TAKEAWAY

PAYBACK METHOD

Pros

- **Simple to compute**
- **Upper limit to risk**
- **Focus on Short Term**

Cons

- **Does not account for Time value of Money**
- **Ignores Cash Flow and Income**
- **Sacrifices Shareholder interests due to bias against long term projects**
- **NO Acceptance criteria**

DECISION ANALYSIS

To quantify the decision to invest in a productivity project it is advised to have an accurate process to determine the investment, operating cost and future cash flows. A typical evaluation would follow the following steps:

- **Benchmark Plant Operating Costs** –This process is critical to develop measurement for decision analysis and the ongoing verification of system performance. Basic information should contain the following:
  - Labor - % of Weekly Sales
  - Direct Production Labor – hours and dollars
  - Supervisor Labor – hours and dollars
  - Overtime – hours and dollars
  - Standard Performance – pieces or pounds per hour

- **Confirm Plant Staffing by department and reduction plan -** this will include both operational and transactional (data collection and input time). The reduction plan should be itemized by department with projected hour reduction plan.

- **Calculate investment costs, annual costs and annual savings** - this should include all cash in and out resulting from the project and the term (life) of the system. This will include:
  - Total Annual Labor (Production, OT, Supervisor) reduction in dollars
  - All Cash Flows (deprecation, maintenance)
  - Cost of Capital and re-investment rate

- **Evaluate investment return and criteria** – as an example assume the following plant criteria with a five year project life:
  - Initial Investment cost and ongoing expense = $150,000 with $10,000 annual operating expense.
  - Labor hour reduction = 4500 hours regular time ($10.00) resulting in annual savings of $45,000 / yr.
  - Depreciation = $41,940 after tax cash savings for the first three years (average of $13,980 per year assuming a 40% tax bracket).
  - Cost of Capital and Re-investment Rate – Discount 10% and Re-investment at 0%

Investment Tool – Discount 10%, Reinvestment Rate 0%	*Investment*	*Annual Savings*	*Payback in years*
Payback with after tax Depreciation Cash Savings	**$ 150,000**	**$ 58,980**	**2.5**
Payback excluding Depreciation	**$ 150,000**	**$45,000**	**3.3**
Marginal Internal Rate of Return (MIRR)	**18.0%**		

- **Projected Savings** — Based on the projected saving of $58,980 (including depreciation cash savings) this project will provide a payback in 2.5 years, while delivering a MIRR over 18% for a five year period. The advantage of using MIRR is that ability to evaluate earnings over the life of the project and compares investment alternatives across equipment, information systems and other facility investment.

"Setting goals is the first step in turning the invisible into the visible."
Anthony Robbins

CASE STUDIES

Hospital Laundry Services (HLS) - Information Integration " Managing of Fill Rate, Customer Invoicing, Linen and Labor"

HLS provides Linen and Sterile Recovery services to 55 Hospitals and over 500 clinics and as such is one of the largest healthcare laundry cooperatives. Based in Wheeling, IL, the 310,000 square-foot plant with the 400-plus employees process more than 60 million pounds working two shifts.

As a Crothall managed plant, HLS strives to deliver high quality service, 100% fill rate and manage labor costs for their members. To accomplish the throughput and control costs, Chuck Rossmiller (General Manager) focused on real-time Information systems to manage the information on customer orders and visibility on plant operations. HLS invested in Linenmaster to capture real-time customer linen management and a PulseNet Production System (PPS) to capture the plant floor operations.

Rick Lucas (Operations Manager) "the PPS provides information to manage employee performance and assessment. PPS provides us a real-time measure of individual's performance and a historical record for personnel assessment."

Vincent Ball's (COO) vision of continuous improvement includes implementing a "Pull Production System" and linen cycle monitoring to optimize plant operations, linen expenses and maintaining a 100% fill rate.

"Since implementing these information systems we have maintained fill rate in excess of 99% and increased our plant productivity by 5 pounds per operator hour. The combination of these information systems provides our management team the real-time information to meet our commitment to our customers". Chuck Rossmiller

Superior Linen - Production "increase ironer efficiency and throughput"

Superior Linen Service (Tacoma, WA) was founded in 1926 and provides textile rental services for the industrial, hospitality, healthcare, and dust control markets.

Greg Hersey (Plant Manager) needed to control production labor in the linen and garment finishing department and implemented PulseNet Production System in the 2nd Qtr of 2008. The system provide a 6 month return on investment by controlling the following production indicators:

- Overtime- Decreased 89.35% from the 3 previous years.
- Straight Time- Decreased 10% from the previous three years.
- Throughput- Increased by 36.7%
- FTE's - Reduced total employees by 9.

Greg's comments on the real time production system are "an incredible product with amazing results. I would hate to think where we would be right now in this economy if it were not for the significant financial savings that Softrol helped us achieve. Knowing what this system can do for us has only made us more focused and created a greater sense of urgency to find ways to continually improve our process".

Greg Hersey
Plant Manager
Superior Linen

REFERENCES:

MacKay Research Group (2008). *"2008 Industry Performance Report."* **TRSA**

George Ferencz (2008). *"2009 Strategic Analysis of the Textile Services Industry."* **TRSA**

Glen Phillips (2008). *"North America Edition Comparative Operating Revenues and Expense Profile."* **, Phillips & Associates, Inc**

David Fonzi (2008). *"Operational Excellence in the Process Industries."* **Aberdeen Group**

Matthew Littlefield (2007), *"Lean Scheduling and Execution",* **Aberdeen Group**

Marek, Elkins, Smith (2001), "Understanding The Fundamentals Of Kanban and Conwip Pull Systems Using Simulation, *Proceedings of the 2001 Winter Simulation Conference,* **Texas A&M University**

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Mr. Blanc has over twenty-five years in domestic and international management, operations and consulting in the Textile Rental Services and Institutional industries.

Chad Keith, CEO, Softrol Systems Inc.

Mr. Keith, has over thirty-three years of professional, technical and managerial experience in operating; Keith Associates, Inc., incorporated in 1976; and Softrol Systems, Inc. which was incorporated in 1987.

Since 1987, Softrol is the recognized leader of process controls and management information solutions for automation of the Textile Service Industry. The company's wide range of products and services are designed to increase plant productivity with an exceptional return-on-investment. Softrol's product quality, reliability, wide range of products, outstanding customer service and expert technical support makes Softrol your most cost-effective automation and information solutions.