



The Business Value of TrakSYS



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Executive Summary

TrakSYS is a manufacturing execution system (MES) platform focused on providing businesses with the visibility, knowledge, and control they need to elevate every facet of their manufacturing operations. From receipt of raw material, through production to shipping, warehousing, and distribution, TrakSYS is focused on providing manufacturers the clear, contextualized, actionable intelligence needed to streamline everything from inventory management to production, performance, quality, maintenance, and beyond. Through a series of in-depth interviews, IDC conducted research that explored the value and benefits to organizations using TrakSYS to help optimize their manufacturing operations. The project included eight interviews with companies that had experience with, or knowledge about, the benefits and costs of using this solution.

Based on extensive quantitative and qualitative data derived from these interviews, IDC calculates that study participants will realize a very substantial 454% three-year return on investment (ROI) by:

- Improving the management efficiency and effectiveness of plant floor operations
- Increasing the productivity levels of operations staff, including production, maintenance, and quality control (QC) teams
- Reducing the number of manufacturing errors coupled with being able to rapidly address the infrequent occurrences
- Increasing on-time and in-full order percentages
- Achieving better business results by saving on material costs, enhancing team performance, and lowering the incidence of errors

Business Value Highlights

Click each highlight below to navigate to related content within this document.

- three-year ROI
- 9 months to payback
- 12% more productive manufacturing floor staff
- 4% more productive maintenance teams
- 28% fewer manufacturing errors
- 30% faster correction of manufacturing errors
- 6%more productive quality control teams
- \$2.32 million savings in material costs
- \$3.25 million total new revenue gained annually
- 13% improved order delivery time



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Situation Overview

Customer and market expectations for more personalized products, deliveries, and services — as well as unanticipated events and sudden demand shocks from global disruptions — are causing manufacturers to rethink their approach to success. With disruption being a constant challenge facing the manufacturing industry, the ability to adapt and change has become even more important. At the same time, market conditions and economic uncertainty have made balancing traditional cost/efficiency pressures even more important. All of this has resulted in factories needing to handle more complex operations, serve a wider range of products while combatting resource scarcity, achieve faster throughput, and reduce costs. With that being the case, manufacturers need the proper digital foundation in place to succeed in this challenging environment.

Manufacturers have encountered many challenges in their efforts to balance all of these concerns, but one of the most cited issues is outdated/legacy infrastructure. Many manufacturers rely upon a mix of plants, assets, and technology systems that are decades old and limited in functionality. Manual operations combined with paper-based data gathering result in disparate, siloed information. These actions truncate data analysis and limit the ability of manufacturers to make the most effective decisions in the necessary time frame. When faced with disruptions to their operation's supply chains, the legacy nature of the industry led to additional challenges that, even if a company knew how they should react, prevented them from being able to take the necessary action. In response, the manufacturing industry has shifted, and digital-first strategies are gaining traction as more and more businesses endeavor to achieve operational resiliency and excellence.

Parsec Overview

Founded in 1987, Parsec Automation Corp. (Parsec) is a software company based in Anaheim, California. The company's MES platform, TrakSYS, has been designed to make managing manufacturing operations as simple as possible. Backed by extensive low-code/no-code functionality, TrakSYS offers its users an array of standardized solutions and likewise enables businesses to tailor solutions to suit their specific needs. Working with industries such as automotive, chemicals, food and beverage (F&B), and life sciences, Parsec has helped make operational efficiency a reality at over 11,000 plants in more than 140 different countries. In the near term, Parsec is developing and deploying artificial intelligence/machine learning (Al/ML) capabilities for manufacturers to take advantage of on the TrakSYS platform.



The Business Value of TrakSYS

Study Firmographics

IDC conducted research that explored the value and benefits of organizations using TrakSYS to manage and optimize their manufacturing operations. The project included eight interviews with companies that have been using TrakSYS and are experienced with, or have knowledge of, the benefits and associated costs. During the interviews, companies were asked a variety of quantitative and qualitative questions about the platform's impact on their manufacturing operations, core businesses, costs, and business results.

Table 1 presents the aggregate firmographics of interviewed organizations. The organizations that IDC interviewed had a base of 15,038 employees with annual revenue of \$6.92 billion. These companies had IT staff of 468 supporting 335 business applications. In terms of location, four companies were based in the United States, with the remainder based in Belgium, the Netherlands, Portugal, and Spain. (Note: All numbers cited represent averages.)

TABLE 1
Firmographics of Interviewed Organizations

	Average	Median	Range	
Number of employees	15,038	12,600	2,000-33,500	
Number of IT staff	468	250	12–2,000	
Number of business applications	335 200 10–1,000		10–1,000	
Revenue per year	\$6.92B	\$7.25B	\$289.40M to \$16.00B	
Countries	United States (4), Belgium, the Netherlands, Portugal, Spain			

Source: IDC Business Value In-Depth Interviews, June 2023

Choice and Use of TrakSYS

The organizations interviewed by IDC described their rationale for selecting TrakSYS to help manage and optimize their manufacturing operations. The companies faced multiple challenges, including the need for greater visibility across the full spectrum of their operations and optimized levels of data quality and transparency to inform business decisions. In their comments to IDC, study participants noted that the platform was easy to



deploy and use and had a user-friendly interface. Participants also noted that TrakSYS had proven to be the best tool for improving their production processes. Respondents further noted that the platform's interoperability improved the cross-operational visibility between various systems and data repositories.

Study participants elaborated on these and other selection criteria:

Looking for the right tool to fit their needs:

"We had a short list with some other market tools, but it was never about finding the best tool but rather the optimal tool that would provide the capabilities we need in the most cost-effective way. Given we already had 40 licenses at the time, with 95% of our plan with a solution deployed, why would I bring another tool? Also, the TrakSYS licenses I had already paid for would enable me to develop those other functionalities I was lacking, so the tool I already had provided the capabilities I needed."

Easy to deploy and use:

"We have a team of more than 10 people that can develop and set up and roll out all the TrakSYS solutions, so we have these skills internally. And the other reason is that the interface, in terms of the process that we can map in TrakSYS, is an easier way than an application for the shop floor. For example, for the user interface, we can moderate, and we can put all the things in a browser."

Best choice for improving overall equipment effectiveness (OEE):

"We are a company that has been through some waves of M&A and divestitures and so on, so the whole journey came together with the merged two businesses two years ago. It started mostly for OEE measuring as part of a reliability program. We chose TrakSYS as a platform to do all those OEE implementations to roll out quite extensively over the past five years. What happened more recently is that we were looking through other capabilities we could use to support other manufacturing execution processes. So we created strategies to account for the capabilities that we wanted."

Improved visibility of Parsec:

"We had experience with MES systems at previous employers and had experienced the benefit of that. When we came here, we felt like we were leading OEE for our industry, but we also knew that if we really wanted to start fighting for those percentage point improvements, we were going to need better visibility of our systems and better visibility of our data. So, with that in mind, we began the process of investigation."

Table 2 (next page) describes the organizational usage associated with interviewed companies' deployment of TrakSYS. Note that there was a substantial footprint of usage across all companies as evidenced by 42% of revenue supported or associated with the platform. On average, companies reported having 16 manufacturing facilities, 75 suppliers, 33,600 products, and 1,603 employees that were supported by TrakSYS via 1,096 direct users. Additional metrics are presented.



TABLE 2
TrakSYS Environment

	Average
Number of manufacturing facilities	16
Number of other warehouses	4
Number of suppliers	75
Number of products	33,600
Number of applications	11
Number of direct users of Parsec	1,096
Number of internal users being supported	1,603
Percentage of revenue being supported	42%

Source: IDC Business Value In-Depth Interviews, June 2023

Business Value and Quantified Benefits

IDC's Business Value model quantifies the benefits for organizations using TrakSYS to improve the overall management efficiency and effectiveness of their manufacturing operations. The TrakSYS platform helped these companies boost the productivity levels of operations staff including production, maintenance, and quality control teams. In addition, it helped them reduce the number of manufacturing errors and quickly correct the ones that did occur. Overall, these companies achieved better business results through the synergistic and combined benefits of saving on material costs, enhanced team performance, lowered incidence of errors, and accelerated order delivery times, ultimately leading to improved customer satisfaction and increased annual revenue.

In their comments to IDC, study participants described these and other benefits in detail:

Better visibility into inventory and material:

"For us, the most important benefit is real-time, inventory-level visibility. We have a lot of SKUs, and we have a lot of raw materials, working programs, and products, so it's an industry that has a lot of capital invested. Another important aspect is how the platform enables us to see current scrap and reject levels. We can see all of this with a report that we run in TrakSYS, and the report allows the management, plant managers, and plant teams to see real-time analysis of production flows and all the things that are important for us."



Improving OEE:

"For us, it's mostly with the OEE legacy implementations, and we are seeing that the visibility we were getting with TrakSYS was helping us understand potential opportunities to improve OEE by defining initiatives through either expanding or using the assets we have in a better way. As such, we typically see some increase in those sites just because we now monitor them closely and derive programs to improve them. When it comes to the MES component overall, one of the biggest value levers for us is the real-time connectivity of shop floor data back into SAP. That functionality leads to more accuracy and less human error, which then leads to better planning, better visibility, and better material resource planning."

Reducing the number of errors and downtime:

"We make fewer mistakes, and the resolution time is faster to correct the mistakes. We produce less scrap waste, which means other benefits for the company. Our own factory went through an amazing radical transformation process in the last four years. We bought new systems, put in new H59 lines, and that's when one of the points of view changed towards the system. We realized that we needed to use new methods, and that's where the TrakSYS system helped us because we needed something that helps us in this increasing complexity in our production line."

Better flexibility/adaptability across operations:

"From an operational standpoint, we are more flexible. As we got into and out of the COVID-19 era, TrakSYS enabled us to maintain that flexibility."

Based on interviews with the nine intensive users of TrakSYS, IDC quantified the value that these study participants will receive over three years at an annual average of 454% three-year return on investment, with an expected payback period of nine months. More granular metrics and calculations are presented in the sections that follow.

Operational Impacts of TrakSYS

Business and supply chain disruption remains a consistent theme for the manufacturing sector. Companies that are trying to stay ahead of the curve recognize the need to accelerate their digital transformation efforts. The quality of information and data and how that data is shared with a constellation of associated players is one important key. IDC predicts that by 2024, 40% of manufacturers will share data with partners, customers, and suppliers, thereby strengthening their supply chains and improving the overall integrity of their operations. Another challenge manufacturers face is improving throughput and increasing yield while minimizing unplanned downtime.

TrakSYS helps companies meet these challenges by optimizing the performance of an entire operation, from receipt of raw materials to fabrication, assembly, shipping, warehousing, and distribution. Interviewed organizations confirmed this by noting that TrakSYS added significant value to their manufacturing operations. In their comments to IDC, study



participants highlighted how the platform helped them readily identify information about issues and customer requests. They also appreciated that TrakSYS helped them gain better access to information across multiple facilities from a centralized setting.

Study participants elaborated on these and other benefits:

Easier to identify information about issues and customer requests:

"From a quality management standpoint, if we had a customer complaint before TrakSYS, I would ask for information from all of our quality checks and those types of things in the morning at 8:00 a.m. If I got that back by lunch that day, all compiled where I would look at it, I was doing pretty good because we were having to go to 11 different cabinets to look for that information. Now, I can pull that information up in about four clicks of a mouse. In doing so, I see the downtime related to any issues we had on the line correlated to that issue, and any notes that my operators or our maintenance guys put into the system. Being able to have that feedback not only from our internal customers but our external customers as well when they find an issue or have some type of problem, we're able to be that much more responsive to them than in the past. We're utilizing this information on a day-to-day basis to drive our decision making."

Organizations that can improve manufacturing outcomes with reliable data:

"The most significant benefit, I would say, is we're finally able to put a scorecard in front of the operators while they are working."

Better access to information across multiple facilities:

"Before, we lacked the ability to correlate specific equipment performance with process issues. TrakSYS gave me a way to see all of the equipment in a centralized setting so, from where I'm sitting in Nashville, I can log in to Montana and see how they are doing live over the day in terms of their performance to target. I can see when they flatline, when there's something wrong, or when unexpected downtime occurs. I can also affect change as well. For example, TrakSYS gives me the visibility and ability to solve problems and understand constraints, be they in regard to human or technical resources or training. If something is not running as fast as it ought to, I can see that from anywhere in the world when I'm plugged into the platform."

Reducing the amount of raw material needed:

"Today, we are really using TrakSYS for our production and quality, but where it brings benefits is that we use the right raw materials on the recipe that we have all along the process. And in doing so, we ensure we use the right amount of raw material so quality is clearly a big benefit. And then efficiency, meaning that we need less people than before because it gives a step-by-step process, picture, and flow that we didn't have. Most of the time the way you implement an MES, we do process the design also for other factories to start implementing the right processes. That is the key benefit alongside product quality."



IDC further quantified these anecdotal benefits by first examining how TrakSYS improved the performance of various teams beginning with manufacturing floor teams. Organizations told IDC that the platform helped them find and identify shop floor inefficiencies and reduced downtime in their manufacturing process. As one study participant noted: "In the past, for us to know how we're doing, we needed to wait until the following day, or even two to three days later, and we still didn't know how we were doing, if we had any problems or not. Now, we are able to see things in real time in the system without asking questions to anybody. Before, we didn't know whether, or how much, we had in the can or how many rejects we had. We didn't have that data. We now know it because the system gives us the answers. The main thing is that if we see a problem today, we make decisions today."

As shown in **Table 3**, interviewed companies saw a 12% productivity boost in the work performed by their manufacturing floor staff. This amounted to the equivalent of adding 76 full-time employees (FTEs). In other words, after adoption, 646 FTEs, on average, could do the work of 722 FTEs without needing to add any additional head count. Given some of the talent shortages manufacturers have faced in recent years, avoiding needing to hire 76 FTEs is a boon to these organizations' management teams. IDC calculated that this improvement resulted in an annual salary savings of \$5.32 million for each organization. **Table 3** quantifies these benefits.

TABLE 3
Manufacturing Floor Team Impact

	Before TrakSYS	With TrakSYS	Difference	Benefit
Manufacturing floor staff productivity impact — equivalent FTEs	646.7	722.7	76	12%
Salary cost per year per organization	\$45.30M	\$50.60M	\$5.32M	12%

Source: IDC Business Value In-Depth Interviews, June 2023

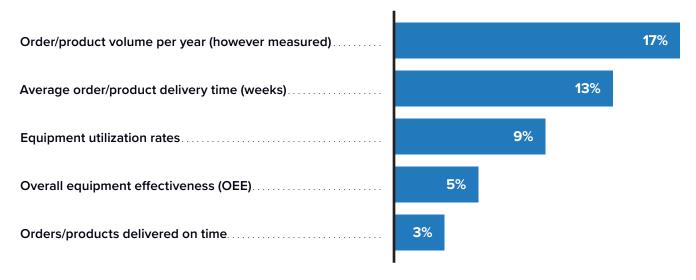
IDC then evaluated impacts on orders. Organizations reported that TrakSYS enabled them to deliver more products. This result was, in part, due to the fact that TrakSYS provided users with better quality information across the spectrum of their operations, thereby improving decision making. **Figure 1** (next page) quantifies these benefits. After adoption, annual order volume increased by 17%. In addition, average order delivery time was 13% faster, while floor equipment utilization rates improved by 9%. Overall equipment effectiveness saw a 5% improvement too.



FIGURE 1

Order Impact

(% of improvement)



n = 8; Source: IDC Business Value In-Depth Interviews, June 2023

Quality control teams also experienced positive impacts. TrakSYS provided these team members with the tools they needed to react quickly and make better decisions. Interviewed companies saw a 6% productivity boost in the work performed by their QC teams (see **Table 4**). In practical terms, this meant that 2.4 FTEs were freed up from a team of 41.8 FTEs to work on other projects. IDC calculated that this improvement resulted in annual salary savings of \$165,600 for each organization.

TABLE 4
Quality Control Team Impact

	Before TrakSYS	With TrakSYS	Difference	Benefit
Quality control staff productivity impact — equivalent FTEs	41.8	39.4	2.4	6%
Salary cost per year per organization	\$2.92M	\$2.76M	\$165,600	6%

Source: IDC Business Value In-Depth Interviews, June 2023



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TrakSYS is designed to easily integrate with existing assets and infrastructure including ERP, SCADA, and PLCs. Because of this and other built-in functionality, TrakSYS enabled organizations to have access to real-time, cross-system data so they could easily address current issues and avoid potential problems in their manufacturing operations. As one study participant noted: "We made a lot of improvements when we implemented TrakSYS on the shop floor. For example, there is no more paper, so instead of one person writing down the air hose value they see only to have someone else input that value into the computer, we now do it all directly in the system, and we do it in real time. The time to act in terms of the problems represents the improvement in terms of OEE, so any kind of problem we have in one machine, we can get alerts, and we can take the right action at the exact moment when we see it. So the time that machines are down is much less."

Figure 2 presents manufacturing quality impacts showing that, after the adoption of TrakSYS, manufacturing errors could be remediated 30% faster. In addition, the platform helped reduce the total number of manufacturing errors experienced by nearly the same amount (28%).

FIGURE 2 Manufacturing Quality Impact (% of reduction)



n = 8; Source: IDC Business Value In-Depth Interviews, June 2023

IDC then evaluated additional staffing impacts. Interviewed companies reported that TrakSYS helped maintenance staff gain a better understanding of the equipment they needed to track and keep fully operational. Interviewed companies saw a 4% productivity boost in the work performed by their maintenance teams, essentially adding three FTEs to existing staff resources without needing to hire that head count (see **Table 5**, next page). This resulted in average annual salary savings of \$213,000 for each organization.

TABLE 5
Maintenance Team Impact

	Before TrakSYS	With TrakSYS	Difference	Benefit
Maintenance staff productivity impact — equivalent FTEs	83	86	3	4%
Salary cost per year per organization	\$5.81M	\$6.02M	\$213,000	4%

Source: IDC Business Value In-Depth Interviews, June 2023

Interviewed companies reported that better visibility into the full spectrum of their manufacturing operations allowed them to optimize raw materials usage. This, in turn, helped them meet the challenges of reducing costs given the realities of highly volatile supply chain environments. IDC calculated that study participants benefitted from annual average material-related cost savings of \$2,324,700 (see Figure 3).

FIGURE 3
Material-Related Cost Savings



With Parsec TrakSYS

n = 8; Source: IDC Business Value In-Depth Interviews, June 2023

Business Improvements with TrakSYS

Interviewed companies confirmed that, after implementing TrakSYS, they saw measurable improvements and benefits for their business operations and results. Boosting the performance of various teams, as previously described, was a key success factor in this improvement, along with being able to fulfill more orders while realizing significant savings in material costs. In their comments to IDC, companies noted that, with TrakSYS, they could



schedule more efficiently and with better real-time visibility into their operations. They also noted improved quality in their products, which resulted in better customer satisfaction and revenue capture, along with more sustainable operations. In addition, they noted that the business was able to improve both revenue and margins because they could produce more and increase product volume while maintaining the same head count.

Study participants elaborated on these benefits:

Can schedule more efficiently:

"In terms of business-related benefits, the improvements we've seen in our scheduling through TrakSYS have been a significant win for us. That goes back just to the visibility that we have in real time now that we previously have not had."

Improved quality impacting customer satisfaction and revenue capture:

"We are seeing improved customer satisfaction mostly because we're putting out better quality products. Because of TrakSYS, our revenue is growing by 2–3%."

Improving revenue from producing more with same head count:

"I will say, if we are closing the plant somewhere and moving volume to the plant that is deploying to digest the volume, then yes, it's improving the margin because we are moving volume to the plant that is more efficient. So, with the same amount of people, we are able to do more volume. So, that contributes to margin increase because you close the plant, you digest volumes there, and you use only the same people that you had in the factories."

Potential to foster more sustainable operations:

"We measure tier 1 and tier 2 levels of CO², so that is how much CO² the power company would emit for the products that we're making. So, in those plants that are using TrakSYS, we've reduced around 1% of our CO²."

As these comments indicate, interviewed companies were able to capture additional revenue from a host of improvements including, but not limited to, improved customer satisfaction, increased effectiveness and productivity of teams that supported core operations, bringing new products to market with greater speed, and the ability to complete orders more rapidly.

IDC quantified these revenue gains (see **Table 6**, next page). On a per-organization basis, IDC's calculations for revenue recognized from better addressing business opportunities amounted to \$3,250,000 in total additional annual revenue for each organization. In addition, IDC's financial model applies a 15% operating margin assumption, resulting in net revenue gains of an average of \$487,500 per interviewed organization.



TABLE 6
Revenue from Better Addressing Business Opportunities

	Per Organization	Per Facility
Total additional revenue per year	\$3.25M	\$160,800
Assumed operating margin	15%	15%
Total recognized revenue per year — IDC model*	\$487,500	\$24,100

^{*} IDC applies a 15% operating margin assumption to calculate the revenue impact recognized for purposes of the ROI analysis.

Source: IDC Business Value In-Depth Interviews, June 2023

ROI Summary

IDC's analysis of the financial and investment benefits related to study participants' use of TrakSYS is presented in **Table 7**. IDC calculates that, on a per-organization basis, interviewed organizations will achieve a total discounted three-year benefit of \$16.5 million per organization (\$817,100 per facility) based on better overall manufacturing performance, improved team productivity, and enhanced business results. These benefits compare with projected total discounted investment costs over three years of \$2.98 million on a per-organization basis (\$147,400 per facility). At these levels of benefits and investment costs, IDC calculates that these organizations will achieve a three-year ROI of 454% and break even on their investment in approximately nine months.

TABLE 7
Three-Year ROI Analysis

	Per Organization	Per Facility
Benefit (discounted)	\$16.50M	\$817,100
Investment (discounted)	\$2.98M	\$147,400
Net present value (NPV)	\$13.50M	\$669,800
ROI (NPV/investment)	454%	454%
Payback	9 months	9 months
Discount factor	12%	12%

Source: IDC Business Value In-Depth Interviews, June 2023



Challenges/Opportunities

As industry complexity continues to increase, manufacturers will be under tremendous pressure to become more streamlined, innovative, and market driven. Like any digital transformation project that can start at a company, being caught in "pilot purgatory" is always a challenge to consider. Parsec will need to help its customers manage this complexity while delivering value and support to numerous functional groups/stakeholders across the manufacturing value chain. Parsec's new release is cloud native; it will be important for the company to clearly articulate the benefits and ease of migration for customers moving away from their on-premises systems. An inability to do so can cause delays or stop decisions to move to the cloud for some manufacturers.

Conclusion

The manufacturing environment is changing faster than ever before. For the business operating in this space, becoming more flexible means taking on more complex operations and jobs and meeting customer demand for wider product selection, increased customization, and faster delivery. Achieving these objectives without incurring higher operational costs often requires establishing a digital foundation upon which manufacturers operate their businesses. Digital technologies are proven enablers of transformation and resiliency, and manufacturers of every size must embrace these tools.

This study assesses the impact for manufacturers of running their business operations on Parsec's TrakSYS platform. Interviewed manufacturers attributed gaining the visibility, integration, and flexibility they require to respond to evolving business demands. They linked these gains to operational efficiencies such as streamlined manufacturing floor operations and lower operational costs, as well as improved business results such as higher revenue and improved margins. In addition, TrakSYS' upcoming Al/ML capabilities will allow manufacturers to further maximize the value of their data and transform the decision-making process, guiding employees to make the best decisions possible. As a whole, these benefits have allowed interviewed manufacturers to capture significant value through their use of TrakSYS, with IDC calculating that they will realize an average three-year ROI of 454% and break even on their TrakSYS investment in an average of nine months.



Appendix: Methodology

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from current users of TrakSYS.

Based on interviews with these organizations, IDC performed a three-step process to calculate the ROI and payback period:

- Gathered quantitative benefit information during the interviews using a before-and-after assessment of the impact of TrakSYS. In this study, the benefits included IT cost reductions and avoidances, staff time savings and productivity benefits, and revenue gains.
- Created a complete investment (three-year total cost analysis) profile based on the interviews. Investments go beyond the initial and annual costs of using TrakSYS and can include additional costs related to migrations, planning, consulting, and staff or user training.
- 3. Calculated the ROI and payback period. IDC conducted a depreciated cash flow analysis of the benefits and investments for the organizations' use of TrakSYS over a three-year period. ROI is the ratio of the net present value (NPV) and the discounted investment. The payback period is the point at which cumulative benefits equal the initial investment.

IDC bases the payback period and ROI calculations on a number of assumptions, which are summarized as follows:

- Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to
 quantify efficiency and productivity savings. For purposes of this analysis, IDC has used
 assumptions of an average fully loaded salary of \$100,000 per year for IT staff members
 and an average fully loaded salary of \$70,000 for non-IT staff members. IDC assumes that
 employees work 1,880 hours per year (47 weeks x 40 hours).
- The net present value of the three-year savings is calculated by subtracting the amount
 that would have been realized by investing the original sum in an instrument yielding a
 12% return to allow for the missed opportunity cost. This accounts for both the assumed
 cost of money and the assumed rate of return.
- Because TrakSYS requires a deployment period, the full benefits of the solution are
 not available during deployment. To capture this reality, IDC prorates the benefits on
 a monthly basis and then subtracts the deployment time from the first-year savings.

Note: All numbers in this document may not be exact due to rounding.



About the IDC Analysts



Harsh Singh Senior Research Analyst, Business Value Strategy Practice, IDC

Harsh V. Singh is a senior research analyst for IDC's Business Value Strategy Practice, responsible for developing return-on-investment and cost-savings analysis on enterprise technological products. Harsh's work covers various solutions that include datacenter hardware, enterprise software, and cloud-based products and services. Harsh's research focuses on the financial and operational impact these products have on organizations that deploy and adopt them.

More about Harsh Singh



Reid Paquin
Research Director, IDC

Reid Paquin is research director for IDC Manufacturing Insights, responsible for the IT Priorities & Strategies (ITP&S) practice. Reid's core research coverage includes IT investments made across the manufacturing industry and manufacturers' progress with digital transformation. Based on his background covering the manufacturing space, Reid's research also includes an emphasis on the technology enablers that help manufacturing executives make better-informed operational decisions.

More about Reid Paquin

IDC Custom Solutions

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