



Sponsored by: **SAP**

Authors:

Carl W. Olofson
Matthew Marden

November 2016

Business Value Highlights

575%

five-year ROI

\$19.27M

average annual benefits per organization compared with annual average investment of \$2.41 million over five years

\$52.6M

higher annual revenue per organization

40%

higher productivity for 28% of users of SAP HANA applications

23%

more productive application development teams

29%

more efficient database management

Innovating with Real-Time Data and Insights with SAP HANA for Better Business Outcomes and More Efficient Operations

EXECUTIVE SUMMARY

We are in a period of dramatic change, when data from new sources, and at greater volumes than ever before, is being ingested and used to drive business productivity. While many see the challenge as one of speed, of keeping up with the competition, others see it as one of innovation — defining and implementing new business processes made possible by such technologies as in-memory data management. Such technologies result not simply in doing what we did before but in doing it faster; they enable us to fundamentally alter business processes themselves, making them more flexible and adaptive to changing business conditions. For instance, having the ability to perform analytics on live transactional data gives applications the power to make adjustments in the moment rather than wait a day for conclusions to be reached.

SAP presents one technology, the SAP HANA platform, as a vehicle for such radical innovation. To explore the depth and business benefits of such an innovation, SAP asked IDC to perform an analysis of its customers, tracking what they did and the various quantifiable cost and benefit factors impacted by what they did using the SAP HANA platform.

IDC interviewed 10 organizations that are using SAP HANA to create insights and analytical outputs to support core business operations. These organizations reported creating innovative and even disruptive use cases for data with SAP HANA through real-time use of data for decision-making and business applications. This innovation is helping these organizations compete better and become more operationally efficient. IDC calculates that

as a result, these SAP HANA customers will realize value worth an average of \$19.27 million per organization per year compared with average investment costs of \$2.41 million over five years by:

- » Achieving better business results through business strategies based on real-time insights and more robust data-driven services
- » Delivering data to users through analytics and innovative applications in ways that make them more productive and valuable to their organizations
- » Delivering next-generation applications that streamline and transform their business processes
- » Identifying operational cost and reducing IT cost inefficiencies
- » Increasing the productivity of application developers and requiring less database administrator (DBA) management time
- » Enabling the retirement of legacy database and infrastructure solutions

Situation Overview

The IT world is in the midst of a substantial transformation, one fueled by technology that enables the rapid processing and analysis of data in real time, resulting in smart applications that can make decisions based on live data and in better-informed people who can take actions and make adjustments during the business day based on that same live data. The foundation of this technological revolution is in-memory columnar compressed data that is processed in an optimal way using single instruction, multiple data (SIMD) applied to processor cache data for very rapid results.

A number of software firms are offering DBMS technology with these capabilities. These DBMS products vary in terms of the levels of optimization because, for the most part, their operations must be harmonized with architectural elements inherited from their legacy to ensure backward compatibility.

SAP HANA

SAP has taken the bold step of offering a new database technology, packaged not just as a standalone RDBMS but as an application platform, designed to optimize application interaction with the data for the best possible performance outcomes. This platform is called SAP HANA, and it forms the basis for all future offerings from SAP.

SAP HANA is a memory-optimized DBMS designed to deliver high throughput rates for transactions and very fast query performance. It does this by managing live data in-memory using an optimized column-oriented structure that is managed in a way that supports fast transactions as well as very rapid columnar lookups to deliver much better performance than classic disk-based, row-oriented structures. Its design yields the ability to perform analytic queries in line with transaction processing on live, transactional data, a capability called analytic transaction processing (ATP). This means not only that an ETL step (with its associated latency) is not necessary to move operational data to an analytic database for such queries but that analytic queries can be used to modify query processing based on the state of the data. Even sophisticated analyses, such as predictive, spatial, text analytics, graph, and time series data processing can be performed on live transactional data without compromising performance or the atomicity, consistency, isolation, durability (ACID) properties of the database.

This platform is enabling SAP customers to build innovative custom applications that blend transaction processing with real-time analytics in order to gain competitive advantage and enhance revenue opportunities. SAP HANA also offers multitenancy support, open standards support, and integration with open standards tools.

Business Innovation with Next-Generation Applications and Real-Time Analytics

Until very recently, it was not possible to optimize a single database to perform both transaction processing and analytic query processing. In fact, it was normal to prohibit all but the simplest queries from ever being performed on a transactional database in order to avoid negatively impacting the performance of its transaction processing. Even today, with an optimized query capability based on a columnar compressed in-memory format, applying such technology to live transactional data is tricky business.

Because it was not possible in the past to use live data for analysis, there were always only two kinds of business decision support driven by analytics: strategic (using an accumulation of historical data over years to analyze trends and make long-range decisions) and tactical (using yesterday's data to make plans regarding tomorrow or last week's data to plan for next week). Now, we have a third: operational, which involves using current data to make decisions while business processes are already executing and guiding those processes based on live data.

“With SAP HANA, we have a single source of truth for sales that’s tied to our annual operating plan. We’re getting smarter every day we use it, and I think the innovation to come will be how we look at our business differently because of transparency and visibility for our sales staff. I think we’ll become more predictive around the KPIs, so we’ll be smarter and make better decisions.”

Examples of such analytics include the following:

- » Using pattern recognition to detect fraud, even while the fraud is taking place, in order to intercede and interrupt it
- » Using predictive analysis to make adjustments to active business processes, such as orders, shipments, payments, customer targeting, and so on
- » Using geospatial data to optimize the movement of personnel, materials, inventory, and so on
- » Enabling teams to collaborate with each other, applying real-time transactional data to optimize their cooperative efforts, and to provide a better quality self-service experience to customers
- » Incorporating data from the Internet of Things (IoT) such as sensors and smart apps to optimize operations

The following quotes illustrate some of the experiences of the customers we interviewed in this regard:

- » *“With SAP HANA, we have a single source of truth for sales that’s tied to our annual operating plan. We’re getting smarter every day we use it, and I think the innovation to come will be how we look at our business differently because of transparency and visibility for our sales staff. I think we’ll become more predictive around the KPIs, so we’ll be smarter and make better decisions.”*
- » *“SAP HANA has some very cutting-edge geospatial capabilities that are embedded directly into the platform, so we can use SAP HANA’s horsepower without even moving the data. We can just crunch it right there, and this will help us make better decisions about costs and expenses that we incur.”*
- » *“We’re expanding interactive analytics into self-service with SAP HANA. In the past, for certain aggregate information, you would come to the data warehouse, and what we’re doing now is we’re collecting the most detailed granular data at the transaction level into the SAP HANA application database itself and exposing this through the BI tools. That’s a big change, big change in behavior. It becomes a one-stop shop for reporting analytics.”*

The Business Value of SAP HANA

Study Demographics

IDC interviewed 10 organizations that have deployed SAP HANA as their in-memory database platform. Interviews with these organizations — which were large enterprises (30,800 employees on average and 19,000 median) — focused on understanding the qualitative and quantitative nature of their use cases and ascertaining their future plans for innovating on the SAP HANA platform. These SAP customers represented a cross-section of industries from five countries in total, providing an overview of how varied organizations are achieving value with SAP HANA as their analytics platform (see Table 1).

TABLE 1

| Demographics of Interviewed Organizations | | |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|--------|
| | Average | Median |
| Number of employees | 30,800 | 19,000 |
| Number of IT staff | 1,287 | 565 |
| Number of IT users | 25,600 | 225 |
| Total number of business applications | 503 | 225 |
| Countries | United States, Mexico, France, Germany, China | |
| Industries | Chemical, consumer electronics, construction, energy, pharmaceutical, retail, risk management, technology, transportation | |

n = 10

Source: IDC, 2016

Most interviewed organizations deployed SAP HANA after concluding that their existing database platform did not provide sufficient levels of performance or even the capabilities to meet evolving business and operational demand. According to one organization: *“The level of detail that we can enable for reports that drive our business is really at a level we didn’t have. We’ve gone from not being able to pull the reports to five seconds with SAP HANA.”* A number of interviewed organizations have invested in building custom applications on SAP HANA, with most customers having started their SAP HANA use by deploying SAP Business Warehouse powered by SAP HANA and SAP Business Suite powered by SAP HANA. Organizations have on average more than 3,000 employees who are using SAP HANA–driven data or analytics as a core part of their jobs, with several organizations supporting customers directly with

“The level of detail that we can enable for reports that drive our business is really at a level we didn’t have. We’ve gone from not being able to pull the reports to five seconds with SAP HANA.”

SAP HANA. The size of the organizations' SAP HANA in-memory environments varies, with an average of 4TB and a median of about 1TB (see Table 2).

Performance improvements were the main reason interviewed organizations initially considered SAP HANA, but today, most of these organizations see SAP HANA as a strategic platform to innovate next-generation applications that leverage Big Data, IoT and machine learning. SAP HANA enables these types of applications by supporting transactions and including the processing capabilities needed to gain deeper insights from live transactional data without data duplication and disk latency.

TABLE 2

| SAP HANA Environments | | |
|-----------------------------------------------------------------|---------|--------|
| | Average | Median |
| Number of business applications running in SAP HANA environment | 21 | 8 |
| Number of internal users supported by SAP HANA applications | 3,220 | 1,350 |
| Size of SAP HANA in-memory environments (TB) | 4 | 1 |

n = 10

Source: IDC, 2016

Business Value Analysis

Interviewed organizations have found numerous ways to create value through real-time analytical insights and delivering higher-value business applications and services with SAP HANA. Interviews reflect the innovative approaches the organizations are taking to leverage data to make their business operations more competitive and efficient and the significant value these efforts are yielding. IDC's analysis shows that these SAP customers are improving business outcomes and making operations more efficient and cost effective, with future innovative use cases expected to bring even more value. IDC projects that interviewed organizations will realize financial benefits worth an average of \$19.27 million per organization per year (\$75,205 per 100 users) over five years in the following ways (see Figure 1):

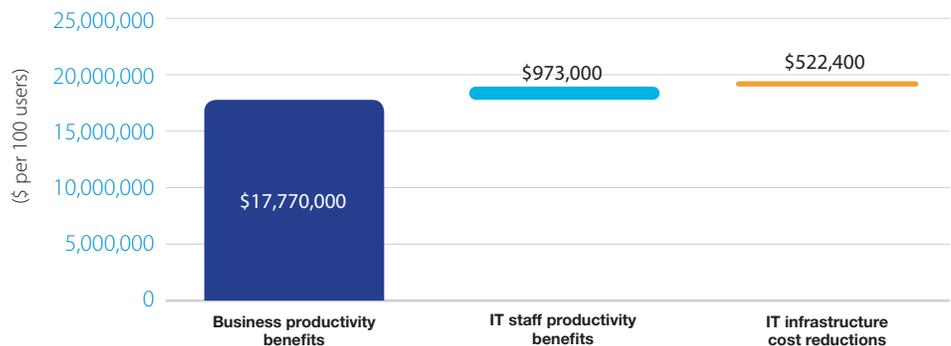
- » **Business productivity benefits:** Business innovation enabled by custom applications that deliver real-time analytical insights and faster data processing with SAP HANA has already significantly impacted the operations of the interviewed organizations. They can better address business opportunities, create data-driven applications and services that

enable employees and customers, and identify operational cost efficiencies. As a result of these innovative custom applications, the organizations are achieving better business results, significantly increasing productivity of key employees, and have also reduced operating costs. IDC finds that these organizations will achieve value worth an average of \$17.77 million per organization (\$69,368 per 100 users) per year over five years in higher operating margin, operational efficiencies in the form of higher employee productivity, and cost reductions.

- » **IT staff productivity gains:** Application developers leverage the speed and integrity with which SAP HANA provides data to deliver higher-value applications and services in less time, in particular by being able to work with and access advanced analytics with ease on a high-performing unified platform. Meanwhile, moving to the SAP HANA platform saves IT staff time in managing database environments. IDC projects that these organizations will realize IT staff efficiencies worth \$973,000 per organization (\$3,798 per 100 users) on average per year over five years.
- » **IT infrastructure cost reductions:** Moving to the SAP HANA platform has enabled the interviewed organizations to retire or reduce their use of legacy database and infrastructure platforms, while SAP HANA's compression capabilities allow for cost efficiencies in storage. IDC calculates that these organizations will save an average of \$522,400 per organization per year (\$2,039 per 100 users) over five years by reducing costs associated with these platforms and consolidating on SAP HANA.

FIGURE 1

Average Annual Benefits per Interviewed Organization



Average annual benefits per organization: \$19.27M

Source: IDC, 2016

“Reports have gone from taking 10 hours to 30 minutes, so employees no longer have to wait two days for them.” Another stated: “Some of the queries we used to run would time out, but we get them in two seconds or less in SAP HANA. This has changed user behavior from traditional reporting to interactive analytics with SAP HANA.”

Improved Data and Analytics Performance

Interviewed organizations unanimously named performance of data and analytics workloads as among the most significant reasons they deployed SAP HANA. They reported that their previous database platforms were unable to provide the levels of performance demanded by their businesses and employees. One organization explained: *“We were having real performance response time problems, especially on our batch and report programs. It was taking too much time and led us to SAP HANA.”*

These organizations reported that SAP HANA has fully addressed these performance issues, which has provided the basis for creating substantial value with data-driven analytics and insights. Interviewed organizations are completing core analytics operations an average of 6.5 times faster (85% less time) with SAP HANA. The result is that queries, batch processes, business reports, and data access occur much faster and closer to the time of actual need for insights from these operations.

Interviewed managers provided numerous examples of these performance improvements. One organization commented: *“Reports have gone from taking 10 hours to 30 minutes, so employees no longer have to wait two days for them.”* Another stated: *“Some of the queries we used to run would time out, but we get them in two seconds or less in SAP HANA. This has changed user behavior from traditional reporting to interactive analytics with SAP HANA.”*

Business Productivity Benefits

Interviewed organizations invested in SAP HANA to enable their business operations and improve their competitive positions through innovation and creating more value with data and analytic insights and reported that they are achieving these objectives. SAP HANA has provided the basis for making better strategic business decisions, identifying more business opportunities, better serving customers through data-driven services, empowering employees through higher-performing business applications and access to data, and identifying operational cost efficiencies. As shown in Table 3, the result is that these organizations are generating significant value through innovative use cases of SAP HANA.

TABLE 3

| Business and User Impact | |
|-------------------------------------|------------------|
| | Per Organization |
| Revenue impact | |
| Additional revenue per year | \$52.61 million |
| Assumed operating margin | 15% |
| Higher operating margin per year | \$7.89 million |
| User productivity impact | |
| Number of users impacted | 913 |
| Average productivity gain | 40% |
| Additional productive hours | 274,428 |
| Business cost efficiencies | |
| Average operational cost reductions | \$675,700 |

Source: IDC, 2016

Business Enablement Through Innovative Applications

Interviewed organizations are achieving better results with SAP HANA by building innovative applications that translate real-time analytic insights into compelling data-driven services, customer-targeted sales and marketing, and more efficient business operations. In addition to providing real-time insights, SAP HANA provides the power to adapt the business processes with its transactional processing capabilities. Many of the interviewed SAP customers realized they needed to leverage data to their advantage or risk losing market position or missing growth opportunities. A retail company commented: "In our business, we need information in real time and we need to be ahead of competition." Another interviewed organization explained: "We needed the levels of functionality that SAP HANA can provide for our ecommerce platform, which is customer-facing reporting."

Interviewed organizations provided a number of examples of SAP HANA helping them win more business and generate higher revenue, which IDC calculates at an average of \$52.61 million per organization per year (\$205,300 per 100 users). Examples included:

- » **Enablement of core customer-facing services.** One organization has created a core service offering: *“SAP HANA is part of a greenfield buildout of an entirely new capability that didn't exist anywhere, and no one else is doing this with a completely new use of technology. We didn't have an existing service that SAP HANA snapped into; we built it from the ground up.”*
- » **Understanding and responding to business patterns.** One retail organization is achieving better business results because its stores *“now have better and precise knowledge of consumption and because we can keep inventory up to date with SAP HANA.”*
- » **Customer behavior analysis.** One organization can better engage with customers by understanding buying patterns: *“We're doing online product recommendations based on data through SAP HANA. We've gained hundreds of thousands of additional revenue based on them.”*
- » **More effective sales operations.** Several organizations are leveraging real-time analytics with SAP HANA to enable sales teams. One organization noted: *“With SAP HANA, the sales team has the ability to understand how they're performing on a daily basis . . . previously there really wasn't sort of a single, efficient, scalable source of data or information for sales.”*

Empowering Employees with Data

Increasingly, employees require timely, robust, and actionable data to maximize their efficacy. This is particularly true not only of staff who rely on data to do their jobs, such as executives, sales staff, and customer-facing support teams, but also of other employees who can leverage data to work more efficiently. Interviewed organizations noted that when these employees fail to receive timely and actionable data, they are less effective. One interviewed organization explained: *“Our previous approach led to a lot of inefficiency in how information was obtained [and] how it was consolidated, managed, reported. And then, because there were many sources of truth, it also created implications around duplication and disagreement over what the information is telling you.”* Performance was also an issue for other organizations: *“We were having major performance issues, and it was affecting our teams for which it's very important to provide responses to customers in a short amount of time.”*

Interviewed organizations have empowered significant numbers of employees with access to consistent, real-time, and robust data and insights with SAP HANA. In particular, these users benefit from having access to not only high-level information but also the details needed to make real-time data-driven decisions. They provided numerous examples of groups of

“SAP HANA has changed user behavior from traditional reporting to interactive analytics because you can ask multiple business questions on the fly and get answers. Executives can now click on a dashboard and get not only high-level information but details. This is a big change in terms of behavior based on what SAP HANA brings to the table — it’s the ability to interact with data and take it to the next level!”

employees who are much more efficient as a result of having access to this data, which enables them to work smarter, more efficiently, and more productively. Examples included:

- » **Sales teams.** Access to consistent, reliable, real-time analytical insights enables sales teams to better respond to prospects and perform better. One organization explained the impact on its 1,200-member sales team: *“Having access to real-time data with SAP HANA is so important for our sales team. To get the answer for a customer in a short time is absolutely great, and it’s improved our sales team’s performance greatly.”*
- » **Customer support teams.** Granular and more robust insights about customer behavior enable more effective support of customers for the 50-person team at one organization. It noted: *“We’re using a tool driven by SAP HANA that allows us to be ahead of our customers so that we’ve already spotted anything that they see. So we’ll have already found that little nugget of information and have come up with ways to address their issue.”*
- » **Decision makers and heavy analytics users.** Nearly every organization mentioned user groups — most frequently executives and business intelligence (BI) teams — who depend on receiving real-time, robust, and efficient data. One organization explained the impact: *“SAP HANA has changed user behavior from traditional reporting to interactive analytics because you can ask multiple business questions on the fly and get answers. Executives can now click on a dashboard and get not only high-level information but details. This is a big change in terms of behavior based on what SAP HANA brings to the table — it’s the ability to interact with data and take it to the next level!”*

Optimizing Operational Costs with Data

Interviewed organizations have also found ways to leverage more powerful analytics with SAP HANA to identify operational cost inefficiencies. For these organizations, many of which have distributed and extensive operations, this cost-based use case for SAP HANA–driven analytics can be compelling. Organizations mentioned uses that included:

- » Better tracking and analyzing resource consumption
- » More effectively stocking goods to match demand
- » Better managing inventory
- » Identifying cost-effective procurement options in real time

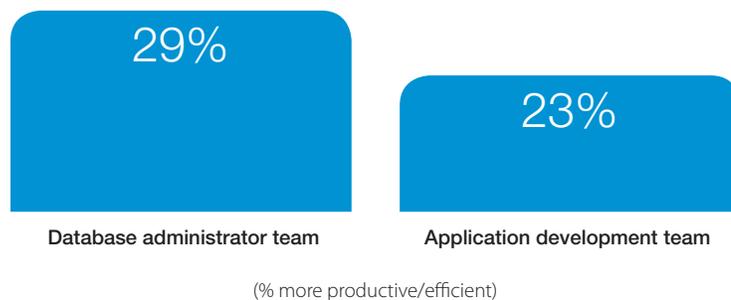
One organization provided an example of saving millions of dollars per year with SAP HANA: *“We’re using SAP HANA to understand how much scrap is in our environment. If we’re able to reduce the scrap percentage even by several percentage points as a result of better understanding it, it’s potentially millions of dollars of savings for us.”*

IT Staff Efficiencies

Interviewed organizations also reported that consolidating on the SAP HANA platform has generated efficiencies for their IT teams. The robust transaction processing capability with advanced analytical processing on real-time data enables application developers to provide more value to their organizations. Further, having a single transactional and analytical platform with built-in management capabilities and multitenant support makes database administrators more efficient. IDC calculates that on average, application development teams are 23% more productive with SAP HANA while database administrator teams are 29% more efficient (see Figure 2).

FIGURE 2

IT Team Efficiencies



Source: IDC, 2016

Enabling Application Development Teams

Interviewed organizations reported that their application development teams can deliver higher-value business applications and services in a timely fashion on the SAP HANA platform, increasing the value they provide to the organizations. Efficiencies relate back to the tools within their SAP HANA environments as well as SAP HANA's ability to generate more valuable data-driven applications through enhanced models and data underscoring the applications. The SAP HANA platform enables innovative applications on live transactional data with advanced analytics, while advanced modeling capabilities can also help reduce

application development time. One organization attributed up to 50% productivity gains for its development team and explained how SAP HANA enables the team: *“SAP HANA simplifies the developers’ job. What I mean is if you’re dealing with a typical database, then you have a bunch of tables that developers have to understand. The secret sauce for SAP HANA is that these analytics views and calculations are provided in a logical view, so instead of developers trying to figure out how things link together, we have consistency and developers are just consumers of that information, which makes it a lot easier and quicker for them to do their work.”*

Making Database Teams More Efficient

Interviewed organizations also reported that their database teams benefit from efficiencies as a result of moving to the SAP HANA platform. In particular, less time is needed in the SAP HANA environment because of in-built management capabilities, consolidating on a more streamlined database platform, multitenancy support, and compression capabilities that minimize SAP HANA footprints. Further, with in-memory data processing, DBAs must spend less time on data management tasks such as indexing and partitioning and more time enabling new projects. One customer confirmed these points, commenting: *“We’ve gone from needing five DBAs to two DBAs with SAP HANA because of three basic advantages: less administration, reducing our overall database size by more than half, and slowing the growth of our database environment.”*

IT Infrastructure Cost Reductions

Interviewed organizations have also been able to reduce costs associated with their previous database platforms by moving to SAP HANA. In particular, they have benefited from having a single platform for transactional and analytical workloads and SAP HANA’s data compression capabilities and multitenant support, helping them maintain more efficient data management environments and move off of more inefficient database and infrastructure platforms. IDC calculates that on average these organizations have taken more costs off of their books than they are spending on annual maintenance fees for SAP HANA (\$2,039 per 100 users in savings per year over five years compared with \$1,854 per 100 users per year for SAP HANA maintenance fees). For interviewed organizations, achieving these cost efficiencies in the context of the significant leap forward in terms of performance and analytics-related impact on their operations and businesses is especially noteworthy.

“We’ve gone from needing five DBAs to two DBAs with SAP HANA because of three basic advantages: less administration, reducing our overall database size by more than half, and slowing the growth of our database environment.”

ROI Analysis

IDC interviewed 10 SAP customers about how they are creating value through real-time analytical insights and data-driven applications and services with the SAP HANA platform. Based on results from these interviews, IDC used the following three-step method for conducting the return-on-investment (ROI) analysis:

- 1. Gathered quantitative benefit information during the interviews using a before-and-after assessment.** In this study, the benefits included employee productivity gains, increased revenue, IT staff efficiencies, and infrastructure- and database-related cost reductions.
- 2. Created a complete investment (five-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of using SAP HANA and can include costs related to hardware, migrations and extensions to SAP HANA use cases, planning, consulting, configuration or maintenance, 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 SAP HANA over a five-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.

Table 4 presents the results of IDC's analysis regarding the interviewed organizations' use of SAP HANA. These organizations will invest a discounted average of \$10.02 million (\$39,116 per 100 users) over five years, which includes up-front and annual costs associated with SAP HANA and supporting hardware as well as IT staff time for deployment, migration, extension, and management of their SAP HANA platforms. IDC calculates that in return, they will achieve financial benefits worth a discounted average of \$67.64 million per organization over five years (\$263,988 per 100 users), as discussed in this study. IDC projects that based on this level of average investment and benefits, the organizations' investment in SAP HANA will yield an average five-year ROI of 575% and that the organizations will break even in an average of nine months.

TABLE 4

| Five-Year ROI Analysis | Per Organization | Per 100 Users |
|----------------------------|------------------|---------------|
| Benefit (discounted) | \$67.64 million | \$263,988 |
| Investment (discounted) | \$10.02 million | \$39,116 |
| Net present value (NPV) | \$57.62 million | \$224,872 |
| Return on investment (ROI) | 575% | 575% |
| Payback period | 9 months | 9 months |
| Discount rate | 12% | 12% |

Source: IDC, 2016

Challenges and Opportunities

The world is not static. Many technology firms are building new and innovative data platforms, many of which embrace capabilities that SAP HANA supports. These platforms will continue to evolve, and the demand for greater variety and breadth of data types, as well as greater volumes, will only accelerate. SAP must continue to innovate in further development of SAP HANA, so that SAP customers can continue to more greatly innovate on the platform.

Summary and Conclusion

Organizations' operations and business prospects are increasingly driven by and intertwined with voluminous data. As a result, organizations must not only manage and maintain this data efficiently to avoid becoming overwhelmed but also leverage insights to generate value through data-driven innovation. Many organizations have found it challenging to transform or incorporate data with the velocity and effectiveness required to accomplish these goals.

This IDC study shows that interviewed organizations are using the SAP HANA platform to create significant value through real-time analytical insights and delivering higher-value business applications and services. They are generating higher revenue and making significant numbers of employees much more productive by building innovative applications on the SAP HANA platform that translate real-time analytic insights into data-driven services, customer-targeted sales and marketing, and more efficient business operations. These interviews reflect a variety of innovative approaches being taken to translate data into value

with the SAP HANA platform and demonstrate the extent to which these organizations are meeting their objectives through higher revenue, operational efficiencies, and cost-effective in-memory database operations.

Appendix

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from current users of SAP HANA as the foundation for the model. Based on these interviews, IDC performs a three-step process to calculate the ROI and payback period:

- » Measure the savings from reduced IT costs (staff, hardware, software, maintenance, and IT support), increased user productivity, and improved revenue over the term of the deployment.
- » Ascertain the investment made in deploying the solution and the associated migration, training, and support costs.
- » Project the costs and savings over a five-year period and calculate the ROI and payback for the deployed solution.

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 manager productivity savings.
- » Downtime values are a product of the number of hours of downtime multiplied by the number of users affected.
- » The impact of unplanned downtime is quantified in terms of impaired end-user productivity and lost revenue.
- » Lost productivity is a product of downtime multiplied by burdened salary.
- » Lost revenue is a product of downtime multiplied by the average revenue generated per hour.
- » The net present value of the five-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 every hour of downtime does not equate to a lost hour of productivity or revenue generation, IDC attributes only a fraction of the result to savings. As part of our assessment, we asked each company what fraction of downtime hours to use in calculating productivity savings and the reduction in lost revenue. IDC then taxes the revenue at that rate.

Further, because IT solutions require 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.

IDC Global Headquarters

5 Speen Street
Framingham, MA 01701
USA
508.872.8200
Twitter: @IDC
idc-insights-community.com
www.idc.com

Copyright Notice

External Publication of IDC Information and Data — Any IDC information that is to be used in advertising, press releases, or promotional materials requires prior written approval from the appropriate IDC Vice President or Country Manager. A draft of the proposed document should accompany any such request. IDC reserves the right to deny approval of external usage for any reason.

Copyright 2016 IDC. Reproduction without written permission is completely forbidden.

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.