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2018

ENTERPRISE TECHNOLOGY BUYER'S GUIDE

IAN CAMPBELL



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Published by Nucleus Research

ISBN 978-1981300976

First printing: December, 2017

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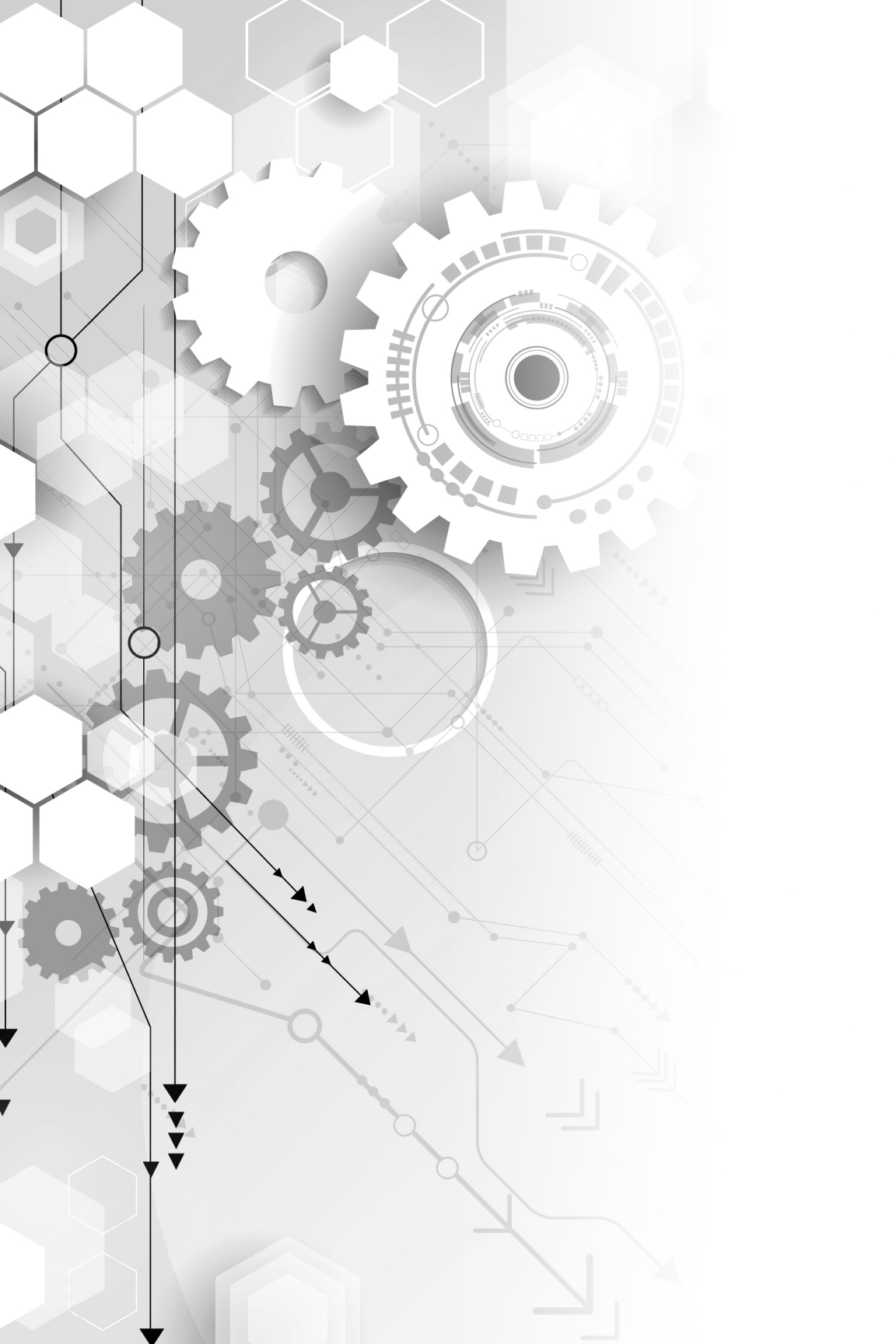
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FOREWORD

This Buying Guide represents the collective work of Nucleus Research analysts across all markets from 2017. It is designed as a guide to those evaluating software for purchase to help show the financial value that such software can bring to their companies. All research is performed and published independently of vendors and is not an explicit endorsement of any one vendor, nor does it claim that any one product will provide the highest value in a given business situation. In addition, full versions of the included matrices and case studies are available for further review from our research library.

With over 600 ROI case studies to date, Nucleus continues to prioritize customer feedback and real customer use cases above all else. With every year of case studies, value matrices, and other research, we engage with more customers and more vendors to better understand what is important for businesses to grow. We hope that this book can serve as a guide to companies making their vendor short-lists, narrowing down the winner of a close proposal process, or re-justifying their ongoing vendor subscriptions.



CHAPTER 1

INTRODUCTION

At no time in modern history have tech decisions been more critical to the success of your business. Analytics, for example, offers ever sharper insight, enabling even quicker course corrections. Customer relationship management aligns you more closely to customers while enterprise resource planning, supply chain, and data management are driving unprecedented efficiencies. Human capital management (HCM) software helps to attract and maintain top talent. Even marketing is becoming increasingly automated.

Of course, company leadership, the right strategy, and expert employees are also vital to your business, but never before has technology been more capable of tipping the scales and generating competitive, even game-changing advantages.

In fact, technology has shifted from a mostly supportive role to an increasingly central part of nearly every business. That's a trend we've seen since before the 1950s that is only accelerating. Development cycles are faster than ever with no sign of slowing. But as tech solutions get continually better, vendors are also increasingly differentiating themselves with unique capabilities.

The good news is that selecting the right technologies can give you a significant edge. The online retailer that can deliver a package quicker than competitors, for example, wins. That's a combination of supply chain, analytics, fulfillment, and logistics technologies. The manufacturing company that brings a highly anticipated product to a broad market before others dominates the category. Everyone knows Tesla. Fisker didn't fare as well.

Making the right technology decision can mean the difference between first-to-market and going out of business. It can also make the difference between staying in business and falling behind. That's because technology decisions are no longer made just once. Subscription-based cloud solutions force technology decisions to be re-justified during every renewal. But with so much at stake, how exactly do you make the best technology decisions?

One Size No Longer Fits All — Demand a Solution for Your Unique Requirements

Long gone are the days of playing it safe by simply picking the market share leader. Established companies had the advantage in the pre-cloud era, as they presumably had more to spend on research and development which helped them to further outpace the competition. It was a “winner-takes-all” paradigm where Microsoft could kill off Netscape, Oracle could destroy Sybase and Informix, and AOL could dominate Internet services to the point of even acquiring Time-Warner.

But the cloud flipped the script, allowing agile and savvy newcomers to compete and even outmaneuver larger, established players. It leveled the playing field and led to a proliferation of new companies offering, in some cases, radically different ways of solving problems. Think upstart Salesforce leveraging the cloud to beat Siebel Systems and Amazon changing the way we buy books. And then almost everything else!

This landscape shift is great news for business, leading to vastly more options. We are no longer stuck in a model where a few monolithic giants control the industry, greatly limiting innovation.

This all means that your business can make informed decisions based on your unique requirements as opposed to what a few select vendors can offer. The one-size-fits-all approach is over! Specialization is increasingly today's game with vendors offering vertical and even micro-vertical capabilities built in. Many vendors now offer integration to other strategic applications. Plus, we are seeing analytics built into everything.

It's worth taking a close look at vendors to see who can best deliver on the unique requirements to your business. Forget market share and hype. If an up-and-coming vendor can deliver, give them serious consideration. Customers that gave Salesforce a shot in the early 2000s reaped enormous benefits.

Value over Magic

In fact, the crux of your decision should focus on business value. Does it offer the functionality you need to succeed? Can the people who need access actually use it? Does it have verticalized features for your industry? Or do you need to custom-build to make it work? That last one is actually a significant cost consideration.

Nucleus believes that a focus on business value will help you to make the best technology decision and break the old mold of looking at the pre-determined “short list” of vendors. In fact, no one seems to know how that short list is put together in the first place. I mean, people used to pull the short list from the Gartner Magic Quadrant.

Today, that approach is simply not enough. At best the Magic Quadrant will identify market share and take into account vendor roadmaps. Beyond that, I’m not sure what else influences a vendor’s position. But consider that in 2005 Salesforce didn’t even appear on the Magic Quadrant, while Siebel was the sole leader.

In fact, the Magic Quadrant’s spell was broken by the cloud in many ways. Smaller challengers that can deliver the goods and provide value might not even appear on the short list for years—not until they are considered more established. Yet your business could take advantage of the solution now. And let’s face it, we are all leading edge today. Especially with the cloud and the software as a service model, where businesses can switch with relative ease to a new provider that offers more benefits. The risks are lower and frankly, a fresh start-up that has vertical features, better usability, solid analytics, and perhaps even a cool visualization tool could give you an advantage over your competitors. Especially if they believe in magic!

Forget the Leader Quadrant and focus on the full spectrum to find the vendor that best meet your unique requirements. And to be fair, yes, the Nucleus Value Matrix also has a Leader Quadrant, which distinguishes those vendors that have both high usability and strong functionality. But it is not uncommon for a company to see more value for their particular business from a vendor in the other quadrants. Consider a small business that might not need the full range of enterprise-class functionality, but does require high usability. Conversely an enterprise corporation might put more weight on functionality, knowing that a small, highly focused team might be the only employees who will even need to access the tools.

Learn from Success — Case Studies

Perhaps the best way to understand how a technology might benefit your business is to evaluate how it has helped other businesses. Especially those similar to yours. In fact, case studies are one of the most underutilized tools in making a tech decision. That's a shame, because they are full of instructive, valuable information.

It goes beyond learning the ROI that a similar organization achieved with a solution. Pay close attention to how it achieved that ROI. Good case studies will share best practices for maximizing business benefits and also lessons learned to help you avoid pitfalls. They can serve as a blueprint to navigate issues and exceed expectations.

The other great aspect of an ROI case study is that they are by nature customer-focused. Far from the vendor marketing fluff and promotional materials, the case study is all about how an actual business leveraged a new solution to tackle an issue.

Measure and Justify Everything

Business intelligence applications of yesterday have transformed into savvy analytics that provide data and insight beyond our expectations even several years ago. This is giving us an ever-more granular view of our businesses and putting hard metrics where they didn't exist before. This is great news on several fronts. First, we are able to quantify processes to understand performance and make better decisions. Second, it gives us powerful justification for technology investments. Conversations with the CFO are much easier with data that demonstrates value. Show positive ROI and chances are you'll get full buy-in from the rest of management.

Analytics has also become more predictive and is able to offer incredible insight into future scenarios. This is invaluable for planning and can also help to justify tech expenses.

The best strategy is to focus on metrics upfront. Build them into your tech decision. Get the metrics that vendors can share to show how the solution typically performs and benefits clients. But also ask about what metrics the solution provides to prove value after you deploy. This is an important and often overlooked step.

Increase the Cadence of Your Tech Reviews

Career experts say that employees should review new opportunities every six months, whether they are actively looking or not. There is a benefit in knowing what is out there and weighing options, they argue. I'm not sure about that, but it is great advice for executives in charge of making tech decisions. An annual tech review these days is irresponsible and even six months is too long to wait. Especially with a steady stream of analytics reports coming in with metrics and insight into your business's performance. We have become a continuous world that is always on. That's especially true of technology.

And with the move to the cloud, many businesses subscribe to software as a service offerings from service providers rather than managing the solution in house. There are many advantages to the SaaS model. Your business can focus on your core competencies and let a service provider handle your CRM or ERP infrastructure needs. Better yet, by simply subscribing to a service, you can also switch to another service provider fairly easily now. You don't have to throw out investments you've made in hardware, software licenses and other technologies to change to a better HCM solution, for example. Simply switch to another service provider and reap the benefits they offer. This breaks the old upgrade cycle and helps you improve value faster.

Even if you are reviewing technology regularly, take time to look at the big picture and consider new options. And do it more often.

These five guidelines will help you to concentrate tech decisions on your unique business requirements with a focus on those solutions that can meet your goals and deliver value. Of course, the tech landscape is constantly evolving with the potential for radical new options to emerge. That means you have to weigh trends to make calculated risks.

Here are some trends to watch for 2018:

INTEGRATE

Integration of enterprise software applications will not only continue but accelerate going forward. Now that everything is basically cloud-based software, it is getting easier to integrate CRM, ERP, HCM, supply chain, back office, data management, analytics, and other applications. In fact, I identified the trend as the mega-app in a blog last year. At some point, the applications become so integrated, that CRM is viewed as a feature set of the

mega-app alongside the ERP feature set rather than a standalone app. From a decision-making perspective, look for solutions that have pre-integration and even certification to work with other apps in your organization.

OPEX

The cloud is about performance now. Software as a service continues to change the game! Not all cloud solutions are created equal. Merely being in the cloud is not enough. Now that virtually every tech solution is in the cloud, the decision focuses on who offers the best tech solution. Plus, as I mentioned above, it's much easier to switch to another vendor solution now. Especially if you subscribe to a SaaS solution.

Remember how in the 90s we could switch phone services from AT&T to Sprint to MCI and back to lower our rates? At one point, we were able to switch service with just a three-minute call to save money. That's where we are headed for cloud-based services.

Let's hope it's not a fight to the bottom with price cutting, although that'd certainly benefit customers. Instead, I expect businesses to switch services as a new vendor or service provider offers beneficial new features and capabilities.

AUTOMATE

With that broader integration of business software, we are seeing more people within organizations who can benefit from access to data across multiple applications. Where only a small team needed access to supply chain software before, today providing access to people in the back office, logistics and possibly even the management team can deliver new efficiencies. Usability has emerged as a key differentiator for technology.

Smart vendors realize this and are seeking better ways to boost usability. In addition to more intuitive interfaces and visual tools, expect an automated approach. As solutions get more complex, vendors will provide automated steps to help simplify management for business users. It's a concept I've identified as the *Dark Cockpit Approach*.

I'm a pilot and I enjoy flying. In the aviator world, a trend arose in the 60s as planes became more sophisticated. The very simple controls from earlier models began to get more complicated as beneficial new features were introduced. In fact, the cockpit started to get very crowded with each new technology and a slew of new switches, gauges, and buttons. It was hard to know where to concentrate and pilots became confused. It was a major safety threat, to be honest.

That's where airline manufacturers got smart by creating the dark cockpit approach to cockpit design. The dark cockpit philosophy is one where information is not displayed until something warrants attention. A screen or annunciator is dark until it is necessary to notify the pilot. In essence, dark indicates a condition that does not need attention where illuminated warrants attention. No need for a potentially distracting light indicating that everything is okay.

This same principal of managing and focusing attention will emerge for complex software. Automation will help users focus on the features they need at any given point during a project or process. In fact, vendors that adopt the dark cockpit approach will greatly outpace their competition. This is a huge differentiator and is poised to be an end-user favorite.

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The key to gauging trends is to avoid getting distracted by what I call "shiny objects." They look great and seem cool but don't necessarily add to your bottom line today. Classic shiny objects garner a lion's share of news coverage too, creating the impression that are a significant trend and possibly even the next big tech wave. Sadly, technology news often focuses on the big vision way out on the horizon. We are the industry that invented "vaporware" after all.

Shiny objects become buzzwords, and sadly too many businesses start evaluating solutions without properly understanding how the solution can deliver real value.

Weren't we all supposed to wear Google Glass by now, using it for everything from factory floor management to discretely passing an important message to the boss. And why aren't we working during the commute already? You know, in our self-driving car that promised to be a mobile office.

Several shiny objects to view with a wary eye in 2018 include:

INTERNET OF THINGS (IOT)

Great concept around getting even more connected and in fact, leveraging new devices to collect unparalleled data. But IoT is largely still conceptual. Sure, you'll hear of the occasional success from time to time. Detecting earthquakes to shut down bridges on time. Disney's much ballyhooed wristbands. And the classic refrigerator that orders milk when you are low, whether you

want it or not.

The only real commercial success I've seen so far is Nest, the home temperature device that can be managed remotely. And yet I keep hearing people ask about IoT strategies for businesses where it makes little to no sense yet.

Perhaps IoT will deliver on its massive promise at some point, but right now it has extremely limited real-world application, even if it does offer great potential in the future. For 2018, take a hard look before investing significantly in IoT. Make sure it can deliver business value over the next 12 months with cold, hard metrics to back it up.

ARTIFICIAL INTELLIGENCE (AI)

Talk about cool. AI is perhaps the most discussed shiny object right now. Bladerunner, Hal 9000 and Robocop. It seems we've grown up with AI, but we've yet to see it in full action. The media will have us believe that's all about to change.

But given the complexity of machine learning and AI technology and the current lack of a killer app to drive adoption, I believe we are looking at modest, incremental gains over the next year. Think evolution, not revolution. Don't completely ignore AI, but like any other tech decision, home in on the tangible business benefits it can deliver over the next 12 months. For most, AI is on a future horizon.

WEARABLES

I mentioned Google Glass, the classic shiny object that generated plenty of hype early on, only to fizzle out. If you are a sports apparel company, this is an important trend to watch. For everyone else, it's a distraction.

To recap, making an informed and beneficial technology decisions starts with your own business and your unique requirements. It's no longer about conforming your needs to the technologies available. Now it's about finding the vendor or service provider who can deliver the functionality and usability that you need.

Stick to the cold, hard facts, not magic. And focus on what the solution can do for you today, not what it promises tomorrow. And look closely at case studies after you've homed in on several solutions. Vendors will be happy to provide references. That's great. But put more weight in an independent, third-party case study.

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Although tech choices are more complex than ever, we are finally getting real options with solutions that can accelerate business, improve efficiencies and create real competitive advantage. Make the time and put in the effort to make the most informed decision. If you don't, understand that your competitors most certainly will and that will put you at a huge disadvantage.

The Value Matrix

This book is designed to guide you through the decision-making process with fact-based data and tools to help you find the right technology. We've included a Value Matrix and useful case studies for the key enterprise business categories.

Before you dig in, a quick word on how to use the Value Matrix. I mentioned usability above. It has become an important and even critical factor in today's technology decisions.

What good is the best functionality if only a select few in your organization can access it? There is tremendous value in leveraging existing data and solutions across departments. That requires usability.

That's why Nucleus Research introduced the Value Matrix format over six years ago. The idea was to develop a quick-and-easy chart to help businesses evaluate vendor options based on their needs. For some companies, functionality will be at a premium, even if only a few people will have access to it. Others will seek to expand who can use an application, placing more emphasis on usability.

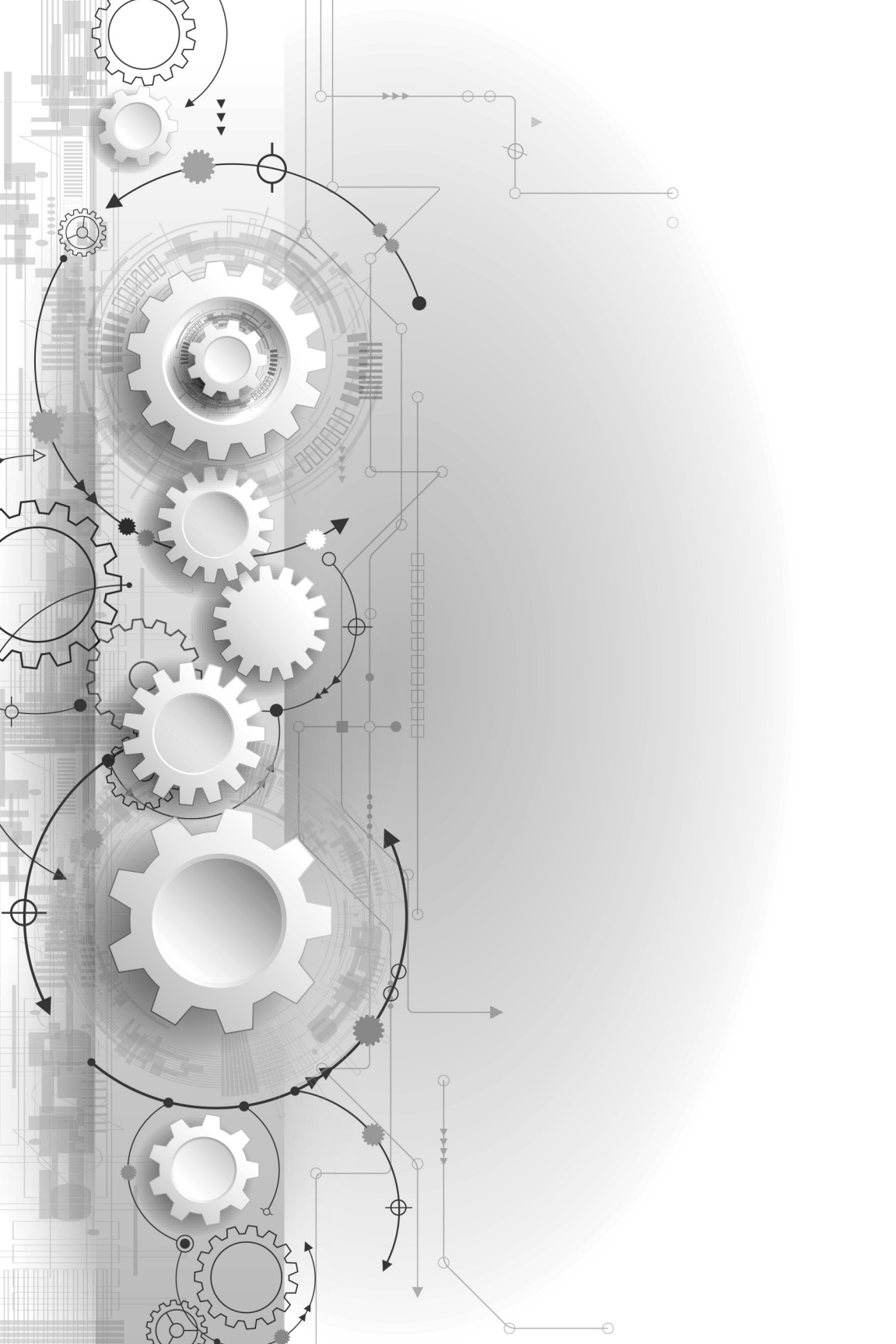
But all markets continue to evolve with greater functionality and usability becoming commonplace. Think of how touchscreen GPS displays—which were once luxury items in automobiles—are now effectively a standard feature in almost all vehicles. That's why the vendors are reassessed relative to the new normal in the market each time the Value Matrix is published. A leader today that does not continue to innovate can fall behind competitors. A small or large arrow indicates our estimate of the trend for a solution for the next 12 months relative to its competitors. Combine the positioning and trend in the market with price to determine the value of a solution.

You might be tempted to simply look at vendors in the Leader quadrant, but that's not always a good idea. Each business has unique requirements and determining value requires a closer look. Remember, we are no longer in the limited, one-size-fits-all paradigm. The Value Matrix lets you easily see which solutions have high usability and those with better functionality.

Think of a Ferrari and a Toyota Prius. Both are excellent cars considering the driver's needs. The Ferrari has features above and beyond what the ordinary driver needs. It enables precise control, superior acceleration and speed capabilities and imparts a status benefit to the owner. The Prius is a highly reliable vehicle with an emphasis on fuel-economy. It also imparts a status benefit to the owner, showing a commitment to sustainability. Both cars would fare well on our Value Matrix, yet they appeal to completely different audiences. And of course, there is a significant price difference.

It's the same with business technology. Paying a premium for the excellent enterprise functionality might not make sense for a medium-sized business when a lower-cost option perfectly fits the bill. Especially if they both offer high usability.

Bottom line, consider both the features you need in a solution, but also who needs access. Then focus on the vendors that can deliver the functionality and usability combination you need with a trend that keeps pace or excels in the market. From that short list, you can evaluate price and make the best decision.



CHAPTER 2

CUSTOMER RELATIONSHIP MANAGEMENT

With most leading vendors making significant product releases several times a year, the customer relationship management (CRM) market continues to be a moving target. At the same time, CRM applications have by far the fastest turnover rate of any class of enterprise applications, for several reasons including the relatively low switching costs of cloud applications, the turnover in sales and marketing management, and the desire of companies to take advantage of the latest tools and technologies that match their experience and skill sets. On the technology front, CRM buyers are still often making separate decisions for sales, marketing, and service automation—and separate decisions for different functions within those pillars—so vendors with a strong integration and platform message are making themselves more attractive. Key areas of focus for vendors include social selling, mobile frameworks, platforms, and industry accelerators.

Social selling. With Microsoft's acquisition of LinkedIn spurring a flurry of embedded AI and social selling announcements, these capabilities are becoming table stakes for sales force automation (SFA) decisions.

Mobile frameworks. Low-code or no-code mobile frameworks from most leaders are accelerating the pace of mobile application development for both internal users and external customers, communities, and partners.

Platform evolution. Advances in platform capabilities and tools and technologies to make upgrades and integration easier are smoothing the learning curve for adopting new enhancements.

Industry accelerators. With multiple leaders adding custom data models,

process flows, templates, and the like to support specific industries, customers benefit from both faster time to market and lower ongoing costs.

We have also monitored the rise in communities as a powerful impact on not just CRM adoption, but innovation, with customer communities, training programs, shared application repositories, and overall peer collaboration driving better use of (and satisfaction with) CRM. Communities will not overtake ecosystems overnight, but they are becoming a powerful force, particularly for solutions with low-code or no-code options.



Customer Relationship Management Value Matrix

Dot indicates current position. Arrow indicates trend in 2018 relative to others in the market.

Acumatica

Though Acumatica primarily provides cloud ERP products, its solutions embed deep CRM functionality that enables users to utilize Acumatica as their core CRM. Acumatica offers solutions that support the retail, wholesale distribution, service, manufacturing, and software and technology industries. The company continues to grow its ecosystem, including recent partnerships with Magento and 30 new value-added resellers (VARs).

Although Acumatica is primarily an ERP player, as it continues to expand its capabilities in CRM beyond basic core functionality to edge CRM capabilities such as field service and e-commerce—and adds enhancements to marketing and sales capabilities—we find that its midmarket customers can often meet all their CRM technology needs with what Acumatica provides. The company's investments in artificial intelligence (AI), Internet of Things (IoT), and other areas will likely make it even more compelling to customers in the future. Although Acumatica still has challenges in terms of market recognition and visibility, it has made significant advances on these fronts in the past 24 months.

Bpm'online

Bpm'online provides CRM and business process management (BPM) solutions in sales, service, and marketing. A recent release offered enhancements and upgrades including extended natural language processing tools, automated contact updates through e-mail, enhanced global search capabilities, expanded customer service and field service capabilities, and the availability of all dashboards and analytics in mobile. Additional releases have included enhancements to the user interface (UI customization) and GPS capabilities for field sales.

Bpm'online continues to advance its functionality in key areas including field service and customer service. In talking with bpm'online customers, we have found that the powerful BPM capabilities as well as the new tools to accelerate time to value make it easier to rapidly customize the solution to their business needs while supporting “edge” CRM functions specific to their operations.

Although the company's North American ecosystem has expanded—as well as its customer base—lack of broader visibility and understanding of



the sophisticated capabilities of the platform continue to keep it off of the short list in large enterprise deals in North America. We expect that the vendor will continue to increase in functionality and usability but should also invest more resources in building out its user community as resources and advocates for the application.

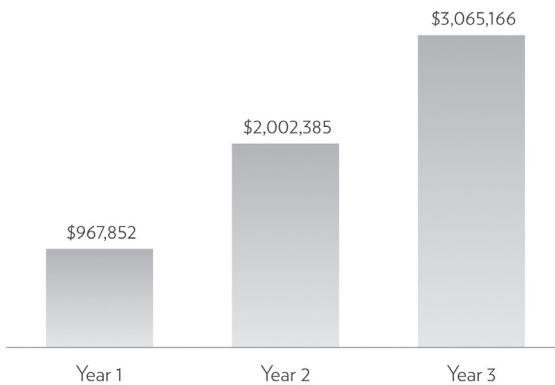


ROI Case Study: Bpm'online

Quint Wellington Redwood Group • ROI: 1566%

Quint Wellington Redwood Group replaced its on-premises solution with Bpm'online Marketing and Sales, driving growth with more complex marketing campaigns. Nucleus found that implementing Bpm'online enabled Quint to increase the productivity and effectiveness of marketing and sales and to reduce licensing costs by 46 percent.

CUMULATIVE NET BENEFIT



THE COMPANY

Quint Wellington Redwood Group is an independent, global consultancy firm with operations in the United States, Europe, and Asia. Quint provides consultancy and training products and services aimed at optimizing IT processes and training IT professionals.

KEY BENEFIT AREAS

Nucleus assessed the direct and indirect benefits associated with Quint Wellington Redwood Group's implementation of Bpm'online and found that the following benefits contributed to its positive return on investment (ROI):

- **Cost savings.** Quint experienced cost savings by decommissioning legacy solutions and avoiding the need to hire additional employees. By transitioning to Bpm'online Marketing and Sales products from Microsoft Dynamics and Clicktools, Quint saved over €20k annually in licensing costs: a 46 percent reduction. Also, to achieve the same results that it does with Bpm'online, Quint estimates it would need to hire three additional full-time marketing employees. Avoiding these additional hires saved Quint over €160k on an annualized basis.
- **Increased employee productivity.** Bpm'online increased the productivity of marketers and salespeople, enabling them to accomplish in-program tasks approximately twice as fast as they could through Microsoft Dynamics CRM and Clicktools. This resulted in over €130k annual savings for the marketing department, and over €800k annual savings for sales.
- **Improved effectiveness of marketing and sales.** The key performance indicator (KPI) by which Quint's marketing department measures its effectiveness is the number of leads it generates that are accepted by sales as qualified opportunities—i.e. the number of sales qualified leads (SQLs). Since implementing Bpm'online, the number of SQLs has increased by 300 percent. The sales department has also become more effective since Bpm'online was implemented, increasing the number of closed deals by 100 percent.

BEST PRACTICES

Two practices were key to Quint Wellington Redwood Group's successful implementation of Bpm'online

Marketing and Sales. Quint focused on deploying and mastering Bpm'online's core capabilities before seeking additional customizations—which led to a faster, cheaper implementation—and invested in change management, helping its employees adopt new practices. Companies that take a similar approach are more likely to experience shorter payback periods than those that do not.

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CRMNEXT

CRMNEXT offers CRM software primarily for the banking and financial services, insurance, retail, media, pharmaceuticals, and automobile industries, with functionality for sales, service, marketing, social, and e-commerce.

With many large customers outside the continental United States, CRMNEXT still is challenged by the perception that does not have the capabilities or scalability to serve large North American companies. A more robust North American presence and customer community effort would improve the company's ability to compete. Even in the cloud world, customers want contact with local support and peers.

HubSpot

HubSpot offers cloud solutions catered to SMBs for CRM, sales, and marketing. The company's recent acquisitions in the AI space have enhanced its recommendations offerings.

HubSpot leads with its marketing capabilities, which is not surprising given its origins as a marketing automation vendor. That said, it provides capabilities for sales as well, but customers still need to look to other vendors for service. Nucleus has found that many SMB customers outgrow HubSpot as their CRM demands become more sophisticated, so building out more of a partner ecosystem (or organic capabilities) will help it to compete more effectively against larger players.

Infor CX

The Infor Customer Experience (CX) Suite includes Infor Configure Price Quote, Infor Contract Lifecycle Management, Infor CRM, Infor Interaction Advisor, Infor Marketing Resource Management, Infor Omni-channel Campaign Management, Infor Rhythm, Infor Sales Intelligence for CRM, and Marketo.

Infor announced the acquisition of Birst in June, adding to its cloud analytics capabilities. Infor has continued to advance in the AI and social selling space with the introduction of its AI-driven platform, Coleman, a partnership with LinkedIn, and a new cloud user experience, and Project Max, which brings relevant information to any user in a single home page.

Infor's advancements in bringing intelligence into CRM has somewhat been overshadowed by Infor's focus on Coleman AI and its impact on its cloud enterprise resource planning (ERP) offering. As competitors have already released products with integrated AI, Infor will need to articulate its product roadmap and timeline for Max-enhanced CRM releases to keep up with the pace of the market.

Infusionsoft

Infusionsoft caters to small businesses, offering solutions for CRM, marketing automation, sales automation, e-commerce, analytics, and payments. Infusionsoft continues to be the solution of choice for many customers at the low end of the market seeking a single platform for sales, marketing, service, and e-commerce. High usability and a broad partner ecosystem to advise customers on how to best implement the solution as part of a broader business growth strategy drive significant ROI for customers. A return to its focus on its core market will play out well as it can focus on investments in innovations specifically for small businesses.

Maximizer Software

Maximizer Software offers CRM with functionality for sales, service, and marketing. Maximizer CRM is also available in industry-specific editions for the financial services, manufacturing, and insurance industries.

The latest release of Maximizer enhances various CRM features with customized notifications, predictive quick search, unlimited quick access

shortcuts for improved workflow, and an improved mobile experience that matches the mobile interface to the desktop interface.

Although Maximizer continues to make investments in functionality and usability, it has not kept pace with the market leaders in key capability areas such as embedded intelligence and AI. That said, it offers customers core CRM capabilities at a competitive price point.

Microsoft Dynamics 365

Microsoft Dynamics 365 includes solutions built for sales, customer service, field service, talent management, finance and operations, retail, project service automation, marketing, and customer insights. Microsoft's combination of Dynamics 365 with acquired LinkedIn continues to be a differentiator for the vendor in the CRM space, as does its AI capabilities stemming from the Azure platform.

The partner ecosystem for Microsoft Dynamics 365 continues to grow, with partners providing additional solutions through the Microsoft AppSource marketplace.

Microsoft is still evolving its pricing scheme for Dynamics 365, which is designed to make it easier for companies to purchase the needed functionality for “power” and “light” users across its ERP and CRM portfolio. Simplification will be key here, as customers do not want the administrative burden or confusion of a complex pricing model for core business applications. The company continues to advance in leveraging the rest of Microsoft—such as Azure Machine Learning—to make CRM more intelligent. As Microsoft aligns its marketing, sales, and engineering efforts to focus more on Dynamics 365, the company will need to be transparent on strategy and roadmap to ensure customers and partners can be confident in making a commitment to the vendor.

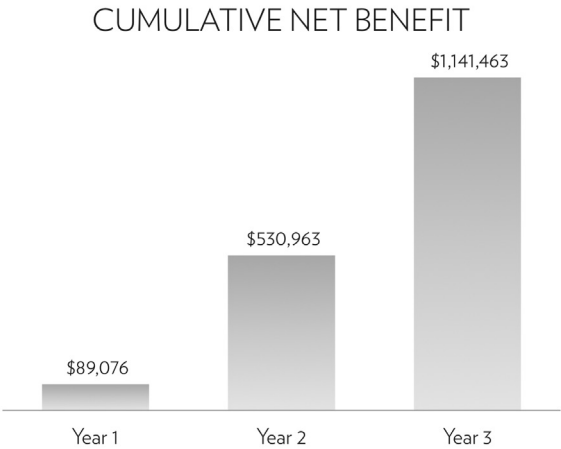


ROI Case Study: Microsoft Dynamics CRM

Luck Stone • ROI: 308%

Luck Stone turned to Microsoft Dynamics CRM Online to drive its transformation into a customer-inspired business. Nucleus found that the cloud-based solution

equipped Luck Stone with the tools it needed to re-align around the customer, improving its account management strategy and stimulating growth. Key benefits included improved data capture, increased productivity of dispatch and order management associates and sales managers, and increased sales and manager effectiveness when CRM was integrated with Microsoft Power BI and Microsoft Office 365.



THE COMPANY

Headquartered in Richmond, Virginia, Luck Stone is one of the largest family-owned and operated producers of crushed stone, sand, and gravel in the nation. Founded by Charles S. Luck Jr. in 1923, the company has thrived under the leadership of three generations of the Luck family.

For 90 years, Luck Stone has been committed to positively impacting the community by building value inspired by its customers, while never losing sight of its roots and core values of creativity, leadership, commitment, and integrity.

KEY BENEFIT AREAS

Deploying Dynamics CRM Online initiated a transformation that improved data capture, increased sales

and manager effectiveness, increased the productivity of dispatch order management, and increased the productivity of managers in other aspects of their jobs. Key benefits of the project include:

- **Improved data capture.** Luck Stone's value-based selling strategy required sales to capture more information for accounts and appointments. Dynamics CRM was customized to make that easier, which increased the amount of information garnered about each customer as well as helped document all interactions. Each sales person saves approximately three hours per week due to the increased efficiency of capturing data with CRM, gaining back nearly eight percent of the week.
- **Increased effectiveness of sales and management — Office 365 and Power BI integration.** Sales and management have better visibility into account information and use interactive dashboards and analytics to manage and gain greater insight into the status of accounts at the push of a button. Sales can update information remotely on any smart device directly after a meeting using Microsoft's iPad app.
- **Increased productivity of order management.** Dynamics CRM equips the order management teams with up-to-date information at any time. Each central order management associate is saved approximately two hours per week due to CRM, gaining back five percent of the week.
- **Increased productivity of managers.** Dynamics CRM equips order management teams with up-to-date information in real-time. Each manager is saved approximately three hours per week due to the benefits of CRM, gaining back nearly eight percent of the week.

BEST PRACTICES

During the initial deployment of Dynamics CRM Online, Luck Stone underutilized the potential of the system. After restructuring its customer base and realigning sales

processes, however, Luck Stone dedicated more resources to customizing the system and training personnel. Because of this, it experienced impressive returns. When Luck Stone coupled Dynamics CRM with Office 365 and more recently with Power BI, it began to see further improvements in productivity. On the basis of our analysis of this case, other companies would be wise to invest in tailoring the system to their business processes up front, so as to get the highest return on investment.

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NexJ

NexJ offers CRM, customer process management, including client onboarding and Know Your Customer, and customer data analytics and intelligence solutions for the financial services and insurance industries.

Recently, NexJ announced the addition of a suite of digital customer engagement capabilities, each of which uses AI to identify customer interests, match these interests to relevant content, and deliver this content to customers across channels. From there, companies can capture customer data, including click-through rates and anonymous prospect information, to target campaigns.

NexJ continues to invest in capabilities that will drive greater user productivity and intelligent action in its key verticals. Its recent innovations in “edge” CRM capabilities give it new reasons to expand relationships and deliver more value to existing accounts. Arguably the company’s biggest challenges are in visibility and in showing up on prospects’ shortlists. NexJ does currently offer a Customer Advisory Group business community and a technical community; however, further investment in advocacy efforts would help both prospects and existing customers learn how peers have made the most of their NexJ investment.

Oracle CX Cloud

The Oracle CX Cloud Suite is an integrated suite of applications that include capabilities for sales, marketing, service, configure-price-quote (CPQ), commerce, sales performance management (SPM), social, e-commerce, and

customer data management. Data as a Service (DaaS) capabilities using Oracle's Data Cloud remain a key differentiator for the Oracle CX suite.

Oracle's Adaptive Intelligent Apps, which offer AI capabilities, automation, and machine learning across the CX Cloud Suite are a focus of current research development efforts. Recently, Oracle announced new updates to its Customer Experience CX Cloud Suite and new updates to its Adaptive Intelligent Apps, as well as new IoT capabilities. These will further the advances Oracle has made in bringing large volumes of data together to drive customer targeting and engagement. Packaging the Adaptive Intelligent Apps as apps shows how Oracle is differentiating its approach to embedded analytics by providing prepackaged applications that drive faster time to value.

Oracle Siebel CRM

Oracle Siebel CRM is part of the Oracle CX suite, offering functionality for sales, service, marketing, commerce, and social. Oracle Siebel CRM focuses on industry-specific solutions for the financial services, communications, high technology, hospitality, insurance, life sciences, public sector, rail, retail, and utilities industries.

Recently the company released the Oracle Siebel CRM Innovation Pack 17.0. The release focuses on enabling easier deployment and improving the developer experience. With the Oracle Siebel CRM Innovation Pack 17.0, Oracle also gave a roadmap for future innovation, which will look to include process automation, AI, data visualization, and enhanced analytics.

Oracle continues to make investments in Siebel as warranted to support its existing user base, and the overall Siebel portfolio still has the greatest breadth of functionality in the industry. However, as Oracle continues to invest in CX Cloud and industry offerings and other competitors build out industry capabilities in the cloud, we have found existing Siebel customers who are seeking to replace it in many areas despite Oracle's investment in lowering the TCO of managing Siebel. We do not consider or recommend Siebel for customers exploring new CRM deployments today.

QuintilesIMS Nexxus

The QuintilesIMS Nexxus brand is part of QuintilesIMS, formerly IMS Health, a provider of information, technology, and services for life sciences, government, and healthcare payers and providers. The Nexxus Suite of

products includes Nexxus Mobile Intelligence, Nexxus Marketing, Nexxus Social, Nexxus Organization Manager, Nexxus Performance, and Nexxus Incent. Additionally, QuintilesIMS offers applications for master data management, multichannel marketing, performance analytics, compliance, consumer solutions, and clinical trial optimization.

Recently, the company announced Orchestrated Customer Engagement, a solution for pharmaceutical commercial operations that aims to converge functional and brand silos by coordinating sales, marketing, CRM, medical affairs, market access, and home operations. The solution uses QuintilesIMS's AI, Ada, which provides users with recommendations for best next steps; features Apollo, an intuitive user interface; and includes Lexi, an application program interface (API) layer to connect all applications and data using common language. Orchestrated Customer Engagement is a fully pre-integrated platform that is built on top of industry-standard platforms such as Force.com, Marketing Cloud, Heroku, Amazon Web Services, and Reltio.

QuintilesIMS's move to replatform its extended CRM offering on the Salesforce platform marked a significant departure for the company, and it has been busy in not just replatforming but also in creating a different CRM model that takes advantage of the innovations of Salesforce while providing capabilities that are uniquely suited to the Life Sciences industry (both within and extending beyond to "edge" CRM). It is still early in QuintilesIMS's product transformation, and we will be watching closely to see the pace the company sets both in releasing new capabilities and in gaining customers from competitors based on a very different value propositions.

[Pegasystems](#)

Pegasystems provides CRM software for sales, marketing, service, and operations, with an emphasis on business automation, case management, robotic automation, and AI. Pegasystems offers vertical solutions for the financial services, insurance, healthcare, media and communications, government, life sciences, manufacturing, and energy and utilities industries. The company differentiates itself through its unified platform and its AI-based Customer Decision Hub.

The company recently launched the Pega Intelligent Virtual Assistant, an AI bot that converts AI chat bots on any channel into digital assistants with a conversational interface that anticipate user needs, make suggestions, and complete tasks.

Pega arguably has the most sophisticated strategy on not just the embedded intelligence front, but on making embedded AI transparent so users can feel comfortable adopting it.

Pega's recent announcement on partner investment is an important step as expansion beyond traditional system integrations are important to scale deployment resources. Pega's recent cloud announcements have given customers more options on how to take advantage of Pega capabilities in a cloud environment.

Sage CRM

Sage is an accounting, payroll payment, and banking solutions provider that offers integrated on-premise or business partner hosted CRM solutions with modules for sales, marketing, and service. Sage CRM does not market its solutions to operate as standalone CRM; rather, Sage CRM products are designed to offer fully integrated, comprehensive, cost-effective solutions for Sage's accounting customers, including Sage 100c, Sage 200c, and Sage 300c. Sage's CRM solutions include: Sage One, which offers a basic CRM solution; Sage Live; Sage Intacct; and Sage X3, which Sage recommends should be integrated with Salesforce.

Recently, Sage announced its acquisition of Intacct, a provider of cloud financial management solutions. With this acquisition, Sage gains Intacct's suite of cloud tools that will provide Sage users with additional financial insight, process automation capabilities, and Intacct's partner network.

Sage offers out-of-the-box functionality that meets its customers' needs, integrated with Sage ERP, and does so at a competitive price point, making it a recommended option for Sage ERP customers in the midmarket that do not need an extensive set of CRM features. Sage will need to continue to prove its value to its accounting customers in a marketplace that continues to offer lower-priced or even free CRM solutions that customers may choose over Sage CRM.

Salesforce

Salesforce offers cloud-based CRM solutions for sales, service, marketing, community, analytics, app, and IoT. We continue to see customers migrate to Lightning and have noted expansion of the use of Einstein AI and analytics capabilities throughout the Salesforce suite. Additionally, Salesforce

continues to invest in its Trailhead developer community.

Key advances in Salesforce's AppExchange partner program have continued to make the Salesforce ecosystem the strongest in the industry, and the company continues to take steps to make it easier for partners to monetize their efforts. Salesforce has also made a number of partnership announcements in the space, linking with IBM, Amazon Web Services (AWS), Google, and others to extend its reach and functional capabilities in areas such as analytics.

In the past year, a key strategy for Salesforce has been in surfacing AI capabilities across its clouds, with numerous announcements bringing Einstein into Sales Cloud, Commerce Cloud, Service Cloud, and Salesforce's other cloud offerings. The Trailhead effort for Salesforce is an important part of the story as well, enabling administrators and developers to advance their skills on the Salesforce platform.

Although Salesforce continues to lead the pace in innovations and releases across its different product clouds, its biggest asset is arguably its customer community and community leaders that are resources and advocates not just for prospects but for peers. Trailhead investments have only reinforced this strength, with new resources available for both neophytes and experienced developers to increase what they can accomplish with Salesforce. Evolution of its platform with the most recent capabilities announced at Trailhead will make it more accessible and usable for developers and independent software vendors alike. Salesforce's biggest challenge moving forward is likely to be pricing. Although many customers are willing to pay a premium for Salesforce's capabilities, they will need to show returns at renewal time to continue to make the case for a higher investment per user than other competitors.

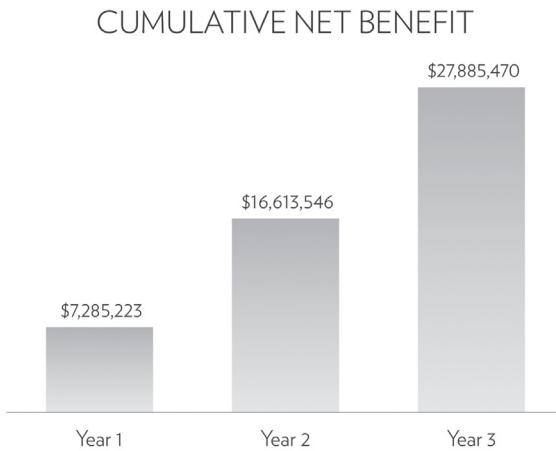


ROI Case Study: Salesforce

Rack Room Shoes • ROI: 777%

Rack Room Shoes and Off Broadway Shoe Warehouse deployed Salesforce Marketing Cloud to expand, customize, and unify their marketing campaigns. The companies leveraged their employees' existing knowledge of Salesforce to move away from a third-party vendor and build an

internal marketing team. We found that the deployment increased revenue and productivity.



THE COMPANY

Rack Room Shoes and Off Broadway Shoe Warehouse sell shoes in a variety of styles for men, women, and children online and in brick-and-mortar stores across the United States. Together the brands have a total of 500 locations with the corporate headquarters in Charlotte, North Carolina, though the Deichmann Group of Germany owns both companies.

KEY BENEFIT AREAS

Salesforce Marketing Cloud enabled Rack Room Shoes and Off Broadway Shoe Warehouse to automate and add text messaging to each company's campaigns. Key benefits of the project include:

- **Increased incremental revenue from in-store rewards programs.** Rack Room Shoes and Off Broadway Shoe Warehouse incentivized more in-store sales by getting more customers to use their in-store rewards programs. Now, customers can sign up for in-store rewards with a mobile phone number instead of an e-mail address. With Salesforce, the companies can see

which customers have not used their reward and use this information to remind customers to redeem it by shopping in-store.

- **Avoided costs and reallocated resources.** In eliminating the third-party vendor and license fees associated with the vendor, the companies also avoided additional professional service fees associated with increasing the volume of the vendor's work. The companies reinvested their resources by hiring an experienced Salesforce CRM administrator in place of an additional analyst.
- **Increased revenue from e-mail and text message.** Where before the vendor only launched one campaign per week, the companies now use Salesforce's automation to launch many different campaigns every day both via e-mail and text message. The companies can also personalize campaign communications by segmenting their customers using Salesforce Audience Builder.
- **Improved marketer productivity.** The integration of data from both Rack Room Shoes and Off Broadway Shoe Warehouse enhances the usefulness of the data the analysts use. With this and automation, marketing analysts now do much more in the time they have.

BEST PRACTICES

Rack Room Shoes and Off Broadway Shoe Warehouse did not need to invest in any training to deploy Salesforce Marketing Cloud. The employees who use the product taught themselves because they had all worked with Salesforce in the past. When a company is selecting a new marketing solution, it can pay to invest in a vendor with which the company's employees are already familiar.

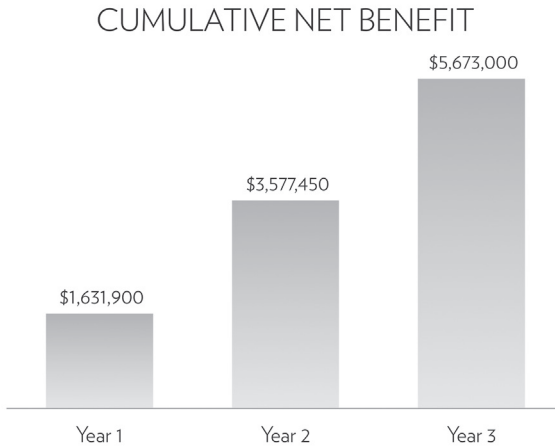
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ROI Case Study: Salesforce Lightning

Aspect • ROI: 636%

Aspect upgraded its Salesforce Sales Cloud to Lightning to modernize its user experience and drive greater adoption. We found that the project enabled the company to increase sales, reduce user help-desk demands, and increase visibility across the organization to improve customer engagement.



THE COMPANY

Aspect was founded in 1973 when it built the first call center flight booking system with automatic call distribution for Continental Airlines. Since then, the company has grown to be a global leader in contact center applications, serving customers in 115 countries. Based in Phoenix, Arizona, the company has approximately 300 sales people.

KEY BENEFIT AREAS

Moving to Lightning has enabled Aspect to drive greater visibility and productivity across its organization, from sales to management to customer support. Key benefits of the project include:

- **Improved reporting and visibility.** Prior to Lightning, Aspect had one full-time business analyst devoted to gathering, scrubbing, and reporting on sales pipeline data. Additionally, there was significant volatility in the

pipeline as pipeline reporting was somewhat manual and subjective. Today, much of that process has been standardized and automated, and the entire management team reviews sales progress and bookings directly in a Salesforce Lightning dashboard. The analyst previously tasked with pipeline reporting has been promoted to other activities.

- **Increased profits.** The combination of customer-centric selling and the guided “Sales Path” capabilities of Lightning Experience—as well as its intuitive UI—has increased sales productivity and the ability to focus on deals most likely to close, enabling Aspect to increase its close rates by 25 percent.
- **Improved renewal operations.** Nearly half of Aspect’s annual revenues comes from renewals, and the renewals team now has up-to-date and accurate account details for each customer. An automated quote generation process that is launched one year from the initial contract closing date has increased productivity for the team by 15 percent because they no longer have to manually review and validate account information before beginning the renewal process.
- **Increased IT support staff productivity.** Aspect has been able to reduce the overall volume of help desk tickets associated with Sales Cloud. It has also reduced the mean active time to resolution for cases by 83 percent, freeing up time for other activities.
- **Improved customer service.** Service Cloud users now have access to up-to-date account and product configuration information for all customers, enabling them to more rapidly and intelligently respond to service requests, and reducing the mean time to resolve a case by five hours.

BEST PRACTICES

Moving to Lightning enabled Aspect to dramatically increase the performance of Sales Cloud while supporting the quoting complexity demanded by its product set.

Because Lightning Experience brings a new way to render pages on the Salesforce platform, a modern UI, and guided selling, users now see Sales Cloud as a tool to support them, rather than a hindrance.

Aspect also embedded IT with sales operations through the planning and deployment process to ensure that the ultimate application that was delivered would be perceived as an enabler to sales.

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SAP CRM

SAP CRM is one of few on-premises-only solutions. It offers functionality for sales, service, marketing, partner channel, management, case management, social service loyalty management, real-time offer management, and trade promotion management.

As SAP previously announced, SAP CRM support is set to expire in 2025, and SAP is currently working to bring SAP CRM into S4/HANA. SAP expects the first edition of S4/HANA with SAP CRM capabilities to be released soon.

There are many existing SAP CRM customers and by bringing SAP CRM into S4/HANA, it will enable these customers to use SAP CRM beyond 2025. However, given SAP's focus on SAP Hybris, we find customers are not considering net new investment in SAP CRM today, and that is unlikely to change.

SAP Hybris

The SAP Hybris cloud solutions include SAP Hybris Sales Cloud, SAP Hybris Service Cloud, SAP Hybris Marketing Cloud, SAP Hybris Commerce, and SAP Hybris Billing.

At SAP's Sapphire Now conference, the company announced SAP Leonardo, the next generation of SAP's intelligent innovation platform, which SAP plans to use to bring together Big Data, analytics, IoT, machine learning, blockchain, and data intelligence. SAP Hybris customers can use SAP Leonardo to bring machine learning to opportunity and scoring scenarios. In addition to organic investments such as Leonardo, SAP has expanded

its capabilities with partnerships (ClickSoftware) and acquisitions (Gigya).

SAP continues to sell SAP Hybris Sales Cloud and SAP Hybris Service Cloud primarily into the existing SAP ERP client base, with S/4HANA, with tight integration being a key selling point for many customers. That said, the company continues to invest in adding functional capabilities across sales, marketing, and service. Although SAP is not yet matching the pace of innovation of leaders in the market in terms of product releases, it has made recent advances in making its feature set more competitive, such as SAP Leonardo capabilities for SAP Hybris. Key to selling outside the SAP base will be providing prospects with more clear and transparent feature comparisons and roadmaps, as well as making its customer community more open.

SatuitCRM

Satuit Technologies offers both cloud-based and on-premises CRM solutions specialized for private equity, hedge funds, wealth managers, institutional asset managers, and funds distribution. SatuitCRM provides standard CRM capabilities in addition to specialized tools to manage the complex legal and compliance workflow inherent in the financial services industry.

The company recently announced a new release which allows Satuit products to integrate with the Microsoft Office suite on any browser. The upgrade also introduced new functionality which enhances the ability to track and manage client assets, expands trust management capabilities, and provides users with dynamic asset summary views.

Satuit has extensive core and “edge” CRM capabilities for its specific industry sector, where it is 100 percent focused. Although it does not have the breadth of marketing and service capabilities of some competitors, it is very focused on superior client service and continues to make investments in key functionality components critical for its clients.

SugarCRM

SugarCRM offers various cloud-based CRM solutions at both the SMB and enterprise levels with functionality for sales, service, marketing, and support. SugarCRM delivers its cloud solutions in various forms, including private, dedicated software as a service (SaaS), tenant SaaS, and more. Though it offers support for traditional CRM pillars, Sugar focuses its investments in the platform, Sugar Mobile, and Sugar Intelligence.

Sugar continues to invest both in core CRM functionality and “edge” applications such as CPQ, as well as in solutions through its partner ecosystem that give customers a broader CRM reach. Advanced BPM capabilities are increasingly enabling it to compete against BPM players like Pega—with a much more competitive price point. Recent releases on the intelligence front show the investments the company has been making in embedded AI. Although Sugar does not have industry solutions or plans for investment in that area, its center of expertise and related partner communities are designed to provide customers with blueprints, best practices, and peer collaboration to fill the gap against competitive industry solutions from other vendors.

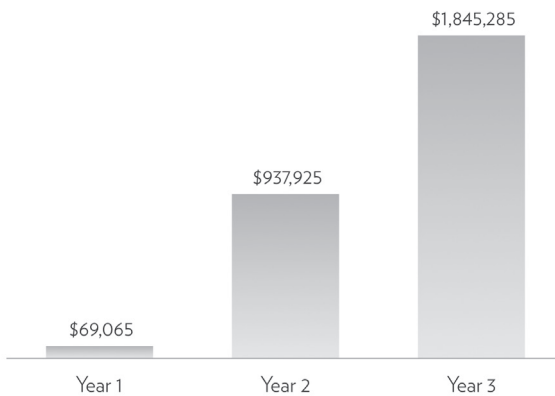


ROI Case Study: Sugar CRM

Healthcare Firm • ROI: 139%

A healthcare company deployed SugarCRM to replace manual customer relationship management processes and drive future growth. We found that SugarCRM enabled the company to foster interdepartmental collaboration, grow new business, and expand existing business, positively impacting the bottom line.

CUMULATIVE NET BENEFIT



THE COMPANY

The company profiled is a global provider of eHealth

and digital imaging solutions, specializing in radiology, enterprise imaging, hospital IT, and integrated care.

KEY BENEFIT AREAS

Implementing SugarCRM enabled the company to replace its customer relationship management processes with an on-premises CRM solution that meets its global business needs. SugarCRM has broken down data siloes, enabled sales and marketing to become more effective at managing accounts, and increased profit overall at the company. Key benefits driving increased profits include:

- **Growth of new business.** SugarCRM enabled sales to manage prospects more effectively, equipping them with the tools to capitalize on new opportunities and move them through the sales cycle seamlessly.
- **Expansion of existing accounts.** With a single view of its customers, the company has a more complete picture of customer histories, enabling it to maintain relationships more effectively and take advantage of upsell opportunities.
- **Improved collaboration between marketing and sales.** SugarCRM has provided a framework for sales and marketing to collaborate and manage accounts, reducing duplicate efforts or opportunities falling through the cracks.

BEST PRACTICES

With so many offices located around the world, the company needed a highly customizable CRM solution that would suit a wide range of needs. The company also needed a partner which could design, develop, and integrate customizations into the platform for them. With SugarCRM's open platform and third-party integration capabilities, it can integrate other applications while still having a unified, single-application interface.

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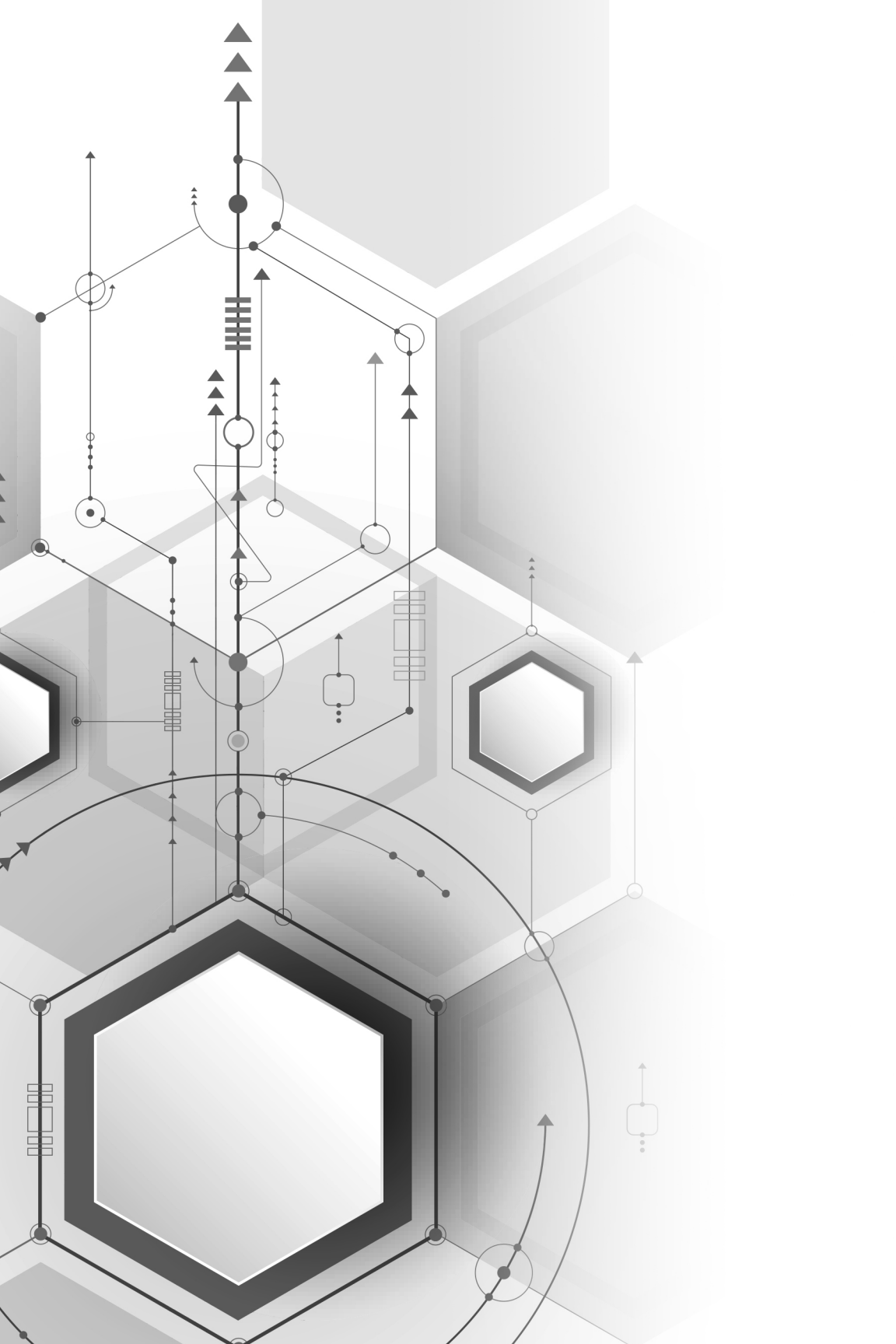
Veeva Systems

Veeva Systems is a Salesforce partner that started on the Salesforce platform. The company focuses on the life sciences industry and includes Veeva CRM (based on the Salesforce platform), a content management solution called Veeva Vault, a master data management solution called Veeva Network, and a customer data service called Veeva Open Data. Beyond simple “edge” applications, the company has built a native iOS application for iPad, for example, that works offline and syncs with the Salesforce platform.

Zoho

Zoho offers solutions for sales and marketing, e-mail and collaboration, business processes, finance, IT and help desk, and human resources. Zoho also offers the Zoho Developer and Zoho Marketplace platforms.

Zoho continues to make investments that reflect its corporate philosophy and mobile-first mindset, aiming to provide customers with a one-stop shop for “CRM plus” at a very competitive price point. Zoho’s limited investments in marketing mean it can devote more to research and development; however, they also result in lack of broader awareness or the misperception of Zoho as a “low-end” solution. Further development of complementary products such as SalesInbox should help it to gain awareness in the broader CRM marketplace and make it a more effective competitor against high-cost solutions.



CHAPTER 3

HUMAN CAPITAL MANAGEMENT

Our analysis shows that nearly 90 percent of the value in human capital management (HCM) resides at its epicenter. Providers displaying the greatest breadth of functionality for HCM under one suite tend to lead the market, and any vendor that does so and is also strong in functionality for the essentials of employment—e.g. payroll and the rest of workforce management (WFM)—are often the best of the best.

Vendors that are strongest at the epicenter of HCM are strongest in HCM altogether. Value in HCM emanates outward from the epicenter, home to the essentials of employing people—payroll plus everything that directly abuts it: time and attendance, scheduling, benefits administration, and core HR. 88 percent of the value found in any technology for HCM is in these elements. The rest is in talent management—and mostly in talent acquisition.

This backdrop sets our analysis apart from some of the conventional wisdom. Because of their comparative weakness at the epicenter, some of the best-known brands in this market space do not fare as the casual observer might expect.

Most notable in this regard is Workday. Our analysis reveals that Workday functionality at the epicenter of HCM is characterizable as basic and thin. SAP SuccessFactors too has lagged at the epicenter of HCM. Unlike Workday, however, SAP accounts for its shortcomings in time and attendance by very publicly forging partnerships with mile-deep solutions for it (and for advanced scheduling).

It is worth noting that both Workday and SAP offer capabilities shared by

only a small subset of other vendors. Along with Oracle and Infor, they can integrate with financials found in ERP within their own suites. Conceptually, this native integration supports marrying the entire enterprise under a single vendor's suite.

Several vendors in this market share the prefix of “pay-“ and battle perceptions that payroll remains their sole focus or ability. Most got their start in payroll, but most too have evolved beyond it in logical ways. Paychex and Paycor are good examples of this, both expanding first into talent acquisition—which is where our analysis shows the next most value can be found in HCM beyond its epicenter.



Human Capital Management Value Matrix

Dot indicates current position. Arrow indicates trend in 2018 relative to others in the market.

ADP

ADP offers three solutions that aspire to be modern technology for HCM—i.e., in a multitenant cloud, unified, and delivered via SaaS. ADP RUN is intended for organizations with 1 to 50 employees. Workforce Now is for organizations employing 50 to approximately 3,000 in staff. Vantage HCM is the upmarket solution, designed by ADP for organizations with more than 3,000 employees.

We have heavily detailed all three solutions' struggles as they face competitors in deals. Usability lags that of other market leaders. Breadth of functionality is wide, however, and by a nominal margin ADP may offer the largest of any vendor evaluated. On several occasions, we have shared harsh analysis of ADP's ability to compete against others in this space, particularly against those in the uppermost righthand corner of the Value Matrix. ADP certainly has a broad solution for HCM, justifying its position well to the right. Deals and user cases that we investigated reveal that ADP falls short, however, when it comes to usability.

In global payroll, we have found that ADP is probably the best choice. This is a byproduct of ADP, compared to other vendors, having the capability to support payroll in the most locations. Notably, Vantage HCM isn't the global solution. For that, there is ADP GlobalView. The average organization deployed on this solution employs approximately 15,000 in staff.

Ascentis

Ascentis is a cloud-based, SaaS-delivered solution. For WFM, the system spans core HR, payroll, and time and attendance, as well as related reporting; for talent management, there is learning, employee assessment, compensation planning, succession planning, and performance management. The vendor's solution covers talent acquisition, as well, including onboarding.

Most of Ascentis' functionality, including analytics, is accessible via the mobile user interface (UI)—in addition to conventionally. One major source of competition for Ascentis are the “pay-” vendors such as Paycor, Paychex and Paycom. A key differentiator is that Ascentis will support users' *a la carte* conversion. Meanwhile, the solution is less expensive than ADP. Our analysis finds users who were formerly on ADP or legacy, non-Dayforce solutions from Ceridian saying Ascentis is by comparison straightforward and easy to use.

Ceridian

Since acquiring the technology and team, Ceridian has built Dayforce from its origins in payroll and the rest of WFM into a full-breadth, full-fledged solution for HCM with functionality that now spans all the main pillars of it. Compared to the competition, this is the most HCM functionality found on a single application and easily positions Ceridian as the leading vendor. The key differentiating factor of Dayforce technology has been its architecture: a single rules engine governing a single application producing a single data set. This architecture makes the definition of real-time processing of information possible. This architecture has long set Dayforce apart from the competition and supports reporting, which is part-and-parcel to the system.

Additionally, Ceridian has added native U.K payroll and a learning management system (LMS) to the single application of Dayforce. For the latter, a partnership with a preferred third party for the delivery of content is forthcoming. The vendor continues to deploy well-thought-out best practices and software tools for customer service and to facilitate implementations, reducing the average time for the latter by 60 percent in the past year. We have closely watched Dayforce evolve from its beginnings, as a solution focused on payroll and the rest of WFM, to become a full suite for all of HCM just five years post-acquisition by Ceridian. As the vendor moves Dayforce upmarket to compete with the likes of Oracle and Workday, we see Ceridian as a brand that employers must consider.



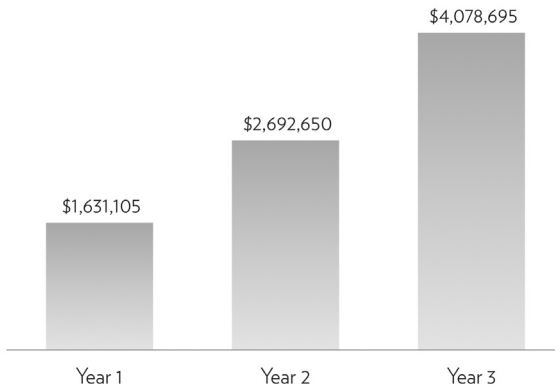
ROI Case Study: Ceridian Dayforce

E&H Family Group • ROI: 216%

The E&H Family Group deployed Ceridian's Dayforce HCM solution to replace an on-premises legacy program with a single source cloud solution. Nucleus found that the Dayforce solution provided the E&H Family Group with an end-to-end cloud solution that eliminated costs associated with the legacy program, improved strategic decision making, and increased efficiencies. Additionally, E&H was able to avoid nearly \$500k required to upgrade the legacy program as well as re-deploy positions within

the organization.

CUMULATIVE NET BENEFIT



THE COMPANY

E&H Family Group was founded in 1929 by Ed and Helen Buehler and remains a family-run business three generations later. It is the parent company for 21 E&H Ace Hardware stores and 13 Buehler's Fresh Food full-service grocery stores. E&H is based in Wooster, Ohio, and currently has more than 2,800 employees.

KEY BENEFIT AREAS

The Ceridian Dayforce solution allowed E&H Family Group to move from a soon-to-be unsupported, legacy system to a more efficient single source cloud application with improved reporting and analytics. Key benefits included:

- **Cost savings.** Elimination of upgrade costs of nearly \$500k to bring legacy system up-to-date. Annual fees were reduced by 20 percent with the implementation of the Dayforce cloud-based application. The position of Oracle project manager was eliminated with the retirement of the on-premise solution, saving E&H Group \$130k per year. External IT support was also dispensed with, along with the costs of two full-time staff that

would have been needed to support the legacy system. Two staff members, one from payroll and one from accounting, were redeployed within the company due to increased automation of the new application and reduction of manual processes. Additionally, the company could offer more employee benefits because of the costs saved with the Dayforce application.

- **Improved strategic decision making.** Actionable data analytics and enhanced reporting capabilities across the organization allow senior executives and managers to make decisions based on accurate data, in real time.
- **Increased efficiencies.** The reduction of manual processes, shortened payroll processing times, and decreased payroll errors, boosted employee confidence and satisfaction.

BEST PRACTICES

The diverse scope of E&H'S retail enterprises requires accurate data analytics and reporting to ensure that HR is functioning at full capacity. Since E&H Group experienced some difficulties with the initial deployment, they noted a few suggestions to avoid those issues. E&H spent a significant amount of time and effort researching vendors to identify the best solution for its needs. The vendor implementation team had limited experience in the retail market, which caused delays in the deployment. E&H suggests that other companies considering a new vendor should consider the value of an independent consultant to develop and monitor a specific action plan that could mitigate the risks of problems that arise. Additionally, E&H would make sure that a parallel payroll was run for at least the first two payrolls, in case there are problems. Ceridian, in conjunction with Wise Consulting, corrected the problems and E&H is satisfied with the outcome.

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Infor

For WFM, the vendor's solution covers core HR, labor cost controls, enhanced operating efficiencies and agility, time and attendance, scheduling, absence management, task management, and Infor Human Resource Management (HRM) Benefits Administration. A COBOL-based, SaaS-delivered solution acquired from Lawson several years ago handles payroll and facilitates regulatory reporting, compliance with employee law, and the processing of payroll taxes. Other global regional packs deliver localized payroll capabilities. For the balance of HCM outside WFM, the solution comprises new-hire on-boarding, off-boarding, employee rewards management compensation management, goal-setting, learning management, and advanced pre-hiring assessment. Infor continues to develop and deploy CloudSuites tailored to several micro-verticals industrywide.

Cross-functionality with Infor's capabilities in financial management is available for WFM and HCM. This pits the vendor against the handful of others in HCM that provide this cross-functionality within their own suites—Workday, Oracle, and SAP. The vendor continues to innovate its functionality and provide a level of usability that benefits its customers. As Infor continues to migrate its legacy installation base to the vendor's cloud solutions, we see the company further solidifying its new reputation as a fully in-the-cloud provider.

Kronos

Kronos offers a middling product line. There's Workforce Ready. Workforce Ready is in a multitenant cloud with SaaS-delivered functionality, but our analysis of user cases finds the solution is workable in a practical sense only for the smallest of SMBs. For enterprise-sized users, the only non-legacy solution available from Kronos is Workforce Central, which is not in a public cloud. A public cloud is a fundamental pillar of modern technology for HCM.

Kronos Paragon, the name for Kronos' implementation program methodology to bring its legacy users into the cloud, is available in more than 50 countries. The solution allows users to streamline the implementation of Kronos Workforce Central in the cloud. This is forward movement, but we remind users that the Kronos Cloud—as the vendor calls it—is a misnomer. The solutions in the Kronos Cloud are not all in a public, multitenant environment.

Oracle HCM Cloud

Oracle HCM Cloud continues to exhibit a great deal of functionality. Usability remains good, too, but does not match that of its competitors. One suite, cloud-based and SaaS-delivered, the solution spans a wide berth of HCM, including core HR, payroll, time and attendance, additional elements of WFM, and all of talent management. Several years ago, Oracle obtained the latter by acquiring Taleo. The vendor reports it has succeeded in recreating all Taleo functionality natively, on the Oracle-originating cloud platform and will continue to sell Taleo-originating technology for talent acquisition as a separate, standalone solution. Oracle HCM Cloud is suitable for companies employing more than 25,000 in staff, as well as those in the SMB category.

As noted previously, Oracle has made great strides in simplifying its data model. This helps to unify not only the many elements of HCM, but all these—especially WFM—with ERP financials. The result has a considerable impact on ROI. After recently acquiring ERP vendor NetSuite, Oracle released SuitePeople, an offering built natively on NetSuite's cloud suite providing users the ability to manage HR, ERP, and professional services on one platform.

The vendor touts the roster of large multinational companies that have turned to Oracle HCM Cloud for functionality at the epicenter of HCM—especially payroll. This may be because Oracle HCM Cloud remains best-suited to service very large companies. But it's unclear how many customers of something under the umbrella of Oracle HCM Cloud are actually on Taleo-originating modules, the cloud-based core HR, or something else. What is also unclear is how many of these large companies are net new customers. We presume a significant chunk of Oracle HCM Cloud users migrated directly off on-premises Peoplesoft.

In terms of the essentials of employing people, our analysis of user cases strongly suggests the integrated usability of functionality found at the epicenter of HCM in Oracle HCM Cloud is more on par with that of ADP than with other leaders such as Ceridian or Ultimate. However, Oracle HCM Cloud is superior in an end-to-end sense to SAP SuccessFactors and Workday.

Paychex

Paychex's usability is good, but not yet on par with that of market leaders.

Paychex offers an HCM platform for SMBs. Paychex Flex is a modular cloud-based solution including, of course, payroll, as well as core HR, benefits administration, time and attendance, compliance, and integration with the general ledger (GL). The solution is a natural competitor to ADP RUN. Unlike with ADP, users of Paychex need not rip-and-replace as they grow.

Paychex can act as a broker or agency for direct integration with payroll. An employee selects health-related benefits through the system, which immediately pipes the information into payroll. Additionally, Paychex has for years been a professional employer organization (PEO). For businesses that are good risks, Paychex will establish relationships with them for several reasons, including reduced benefit costs, HR management, and regulatory compliance, among others. In these scenarios, a human resource generalist (HRG) has a one-on-one relationship as advisor and resource to the employer. The IRS has given certification to the Paychex PEO. Further expanding its PEO-related capabilities, Paychex recently acquired HR Outsourcing, Inc. Nucleus expects usability to increase in the Paychex system as the newly added functionality in analytics evolves and matures. As this happens and non-WFM functionality outside talent acquisition emerges, we believe the vendor's trajectory may eventually improve Paychex's position in the market.

[Paycom](#)

Paycom has expanded since its founding nearly 20 years ago, as a payroll application for SMBs. The vendor now provides functionality not only for WFM, but all of HCM, too. For WFM, in addition to payroll there is time and attendance and benefits-related compliance. Elsewhere, there is talent acquisition (sourcing through onboarding—e.g., candidate tracking, applicant tracking, background checks, and E-Verify), performance management, compensation planning, and learning. The Paycom solution runs in a public cloud and on a single application producing a single database, as do a just a handful of other competitors. As we have noted previously, Paycom users have reported limitations in functionality and reporting. Positives, however, include ease of use, dedicated account manager, frequent automatic updates, and competitive pricing.

[Paycor](#)

Paycor is a cloud-based suite that spans much of HCM. For WFM, the

solution comprises payroll processing, core HR, time and attendance, reporting, benefits administration, and compliance reporting. Additional reporting and analytics are available, and the solution also spans the full breadth of talent acquisition. Paycor continues to hone its capabilities in mobile functionality and recently launched a new version of Paycor Mobile. Paycor has also acquired Newton Software, thus adding talent acquisition to its suite.

Nucleus expects Paycor to gain market share as functionality expands to include more than WFM and talent acquisition. Most organizations using Paycor today employ 50 or fewer in staff. This places Paycor squarely in competition with players such as Namely, Zenefits, and ADP RUN. Recent customer wins see Paycor moving upmarket to service companies employing, on average, 100 in staff.

PeopleFluent

PeopleFluent is a cloud-based, SaaS-delivered suite unique among most HCM vendors in that the vendor does not develop modules for WFM. Functionality spans talent management and related activities: talent acquisition, performance management, professional development, workforce analytics, learning, succession planning, organizational planning, and compensation planning. PeopleFluent did announce the establishment of a partnership with Benify, a benefits platform, to help unify total compensation—thus dipping into an element of WFM. PeopleFluent's strengths are in healthcare, manufacturing, and financial services. The vendor's typical customer is enterprise-sized with 10,000 or more employees.

PeopleStrategy

Cloud-based and SaaS-delivered, PeopleStrategy's suite, eHCM, spans core HR, a full-service payroll module, benefits administration, time and attendance (plus scheduling), additional elements of WFM, talent acquisition, and performance management. eHCM requires no upgrades when the solution increases in functionality. The same cannot necessarily be said of competitors. Mobile functionality in PeopleStrategy is available via the Web.

The PeopleStrategy solution can accommodate companies with anywhere from 100 to 5,000 employees. PeopleStrategy's proprietary, in-house ClearPath Implementation program enables users to deploy only the functionality they need and provides clear and consistent communication

throughout the implementation process. This helps to reduce the time to deploy and minimizes implementation costs.

SAP SuccessFactors

SuccessFactors has managed to halt the slide backward through the emergence of increasingly coherent messaging and improvements around issues and a bevy of enhancements to functionality elsewhere.

For years SAP has had a program in place to develop advanced functionality for payroll — localized already, notably, for 50 countries — as well as for time and attendance. With this assurance has been the promise that the work is underway, and reports of improvements in the depth of functionality for time and attendance have been reported recently. SuccessFactors' developers are succeeding, and improvements are all in Employee Central. New capabilities have been too subtle and iterative to merit fanfare, but we expect a major announcement to come soon.

In the meantime, the vendor acknowledges that it needs to communicate a lack of intent to develop sophisticated capabilities in scheduling. SAP continues to be transparent in ceding sophisticated functionality for scheduling to vendors that specialize in this area at the epicenter of HCM — establishing and publicizing partnerships with mile-deep point solutions.

SnagAJob

SnagAJob acquired cloud-based, SaaS-delivered PeopleMatter in mid-2016. The combined entity merges PeopleMatter's functionality for WFM, recruiting, onboarding, learning, and performance management with SnagAJob's platform to connect hourly job candidates and hiring organizations interested in them. As the vendor marshals all this functionality into one suite, we expect SnagAJob to solidify its position in the market for functionality and that it will eventually be able to stake its claim in usability.

Our analysis shows that there is fertile ground for value to be realized at the intersection of WFM and talent acquisition. This supports the rationale for the marriage of SnagAJob and PeopleMatter. SnagAJob has worked assiduously to integrate PeopleMatter, particularly looking to capitalize on PeopleMatter's market share with larger, enterprise-size employers. These efforts have won SnagAJob deals to handle recruiting for large companies such as McDonald's, Sonic, and KFC.

SumTotal Systems

SumTotal Systems—three years following its acquisition by Skillsoft—has succeeded in combining talent management and WFM. This includes time and attendance, scheduling, absence and leave management, and payroll data processing—with learning technology and content. The vendor announced new features to bring WFM, talent management, learning, and recruiting onto one platform. The platform provides in-memory data-crunching to marshal and process data from SumTotal's and Skillsoft's combined applications. The results are embedded predictive and prescriptive analytics that aid decision-making.

Employers may obtain the very latest version of SumTotal regardless of which model they use to employ the software—SaaS-delivered via multi-tenant cloud, privately hosted in SumTotal, or on-premises. Nucleus believes SumTotal, in concert with Skillsoft, has set a solid foundation for itself to defend its position and future, positive movement. The vendor is one of the few that offers literally the full breadth of HCM, soup to nuts—from payroll and the rest of WFM, to learning management and content, and all the important buckets of talent management.

SyncHR

Built from scratch in a multitenant cloud, SaaS-delivered SyncHR spans native functionality for core HR, benefits administration, and payroll. All these modules produce a single dataset informing analytics reporting. SyncHR holds a patent on technology pertaining to its single dataset, which is therefore unique in the flexibility and depth of insight it affords users. SyncHR holds another patent enabling the vendor to tie HCM workflow to roles, not people. This is significant in that it greatly reduces the rigmarole—and lost productivity—an employer otherwise suffers in assigning new hires or promoted employees to existing automated tasks previously handled by their predecessors.

Approximately two-fifths of SyncHR's new business comes from ousting ADP incumbents, according to the vendor. We have not verified this, but finds it logical given the comparatively complicated nature of data behind ADP's UI. It's likely for this same reason that Dayforce presents tough competition for SyncHR, which often encounters Ceridian's solution in head-to-head deals. UltiPro surely brings tough competition, too. SyncHR confirms

frequently encountering Ultimate Software. Nucleus all but guarantees that SyncHR finds formidable competition in Paycom and Namely, as well.

Where SyncHR falls short against these same competitors is in the lack of native functionality for time and attendance and attendant lack of commensurate visibility, for users, into this aspect of activity in the workforce. For this area of HCM, SyncHR pipes in white-labeled Kronos functionality found in Workforce Ready, a Kronos solution whose functionality lags that of others in this market. But Nucleus understands why SyncHR may have chosen Kronos, at least for now: Kronos has a vast installation base and benefits from widespread brand recognition that likely sets prospects of SyncHR at ease. Ultimately, if and when SyncHR brings functionality for time and attendance in-house, fusing it with the single data set, the vendor will bring fiercer competition to its most logical competitors.

Ultimate Software

Ultimate Software's existing solutions for complex payroll, predictive analytics, recruiting and onboarding. Also bolstering the vendor's ability to defend its turf in the HCM market is the launch of newly developed native functionality for WFM. Predictable implementations resulting in significant ROI for customers, according to our analysis, constitute another factor.



UltiPro, the solution from Ultimate Software, is a full-suite public cloud-based, solution for HCM, delivered via SaaS. UltiPro covers core HR, payroll, benefits administration, the remaining breadth of WFM, recruiting, onboarding, succession planning, performance management, and compensation planning. Included in core HR are predictive and prescriptive analytics.

Also of note this year is the vendor's progress in equipping UltiPro to recognize, extract and analyze data that has a bearing on employee engagement and culture. Specifically, with the UltiPro Perception product, acquired Kanjoya-originating abilities in natural language processing (NLP) and in deciphering unstructured data are bearing fruit. In combination with the predictive analytics platform, Ultimate is succeeding in enabling its user base to identify and influence variables, factors and events that bear on organizational health. Functionality for Leadership Actions benefits directly.

Ultimate's perennially good performance is attributable to the strong satisfaction with UltiPro that we encounter in speaking with the vendor's users.

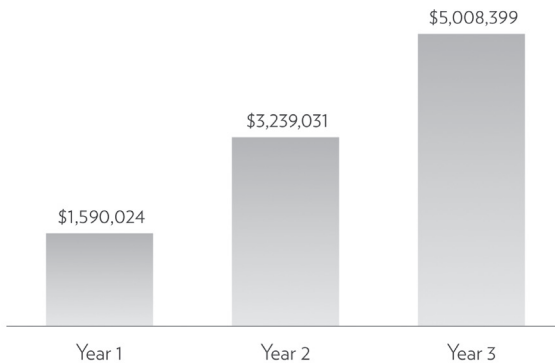


ROI Case Study: Ultimate Software UltiPro

Pace Center for Girls • ROI: 1292%

Pace Center for Girls deployed Ultimate Software UltiPro to replace a legacy HCM application with end-to-end cloud technology. The company sought a solution that would eliminate partial paper-based processing and deliver actionable analytics. Nucleus found that the UltiPro application enabled Pace to achieve significant cost benefits such as the implementation of a self-insurance program, reduction of employee turnover by 50 percent, and reduction of payroll auditing expenses, resulting in increased productivity across the enterprise.

CUMULATIVE NET BENEFIT



THE COMPANY

Pace Center for Girls is a nationally recognized gender-responsive program for vulnerable teenage girls ages 11 to 18. Headquartered in Jacksonville, Florida, the nonprofit organization was created in 1985 as an intervention program to serve at-risk girls by providing education and social service programming. The Pace Center has 19 locations in Florida and is funded primarily by donations, the Florida Department of Juvenile Justice, local school districts, and private donations.

KEY BENEFIT AREAS

Deployment of the Ultimate Software UltiPro HCM application allowed Pace to move from a manual process to a more efficient and less costly automated application. Key benefits included:

- **Cost savings.** Elimination of the legacy platform and related IT support expenses has reduced direct HCM operating costs.
- **Self-insurance.** UltiPro analytics and reporting, along with the benefits self-service module provided a degree of accuracy that allowed Pace to self-insure, saving \$1m over three years. Additionally, Pace could enhance the benefits package offered to employees because of associated cost savings.
- **Reduced turnover.** The improved accuracy of data collection and reporting has delivered actionable insights that Pace was able to implement. This contributed to reducing staff turnover from 60 percent per year to 30 percent per year, with annual savings of \$1.3m per year. These improvements, along with direct accessibility for employees to review personal information, have created more trust and credibility with employees.
- **Increased productivity.** UltiPro could automate HCM administration while reducing the possibility of errors or omissions across the HR processing cycle, saving time for payroll managers, benefits managers, recruiters, and internal HR staff.

BEST PRACTICES

Pace identified several best practices during selection and deployment of the UltiPro application. Since Pace operates the program like a business rather than a traditional non-profit, it can assess activities and outcomes more accurately, and initiate changes when needed. Pace maintains a sharp focus on the goals and strategy that they have set for the operation.

Early collaboration and communication between

decision makers and employees was essential to the development of an accurate needs assessment and evaluation of vendor offerings. The choice of a scalable solution that can support continued expansion due to expected growth of the program should be a primary consideration for all non-profits. These practices should resonate with many non-profits struggling to be productive and successful.

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ROI Case Study: Ultimate Software UltiPro

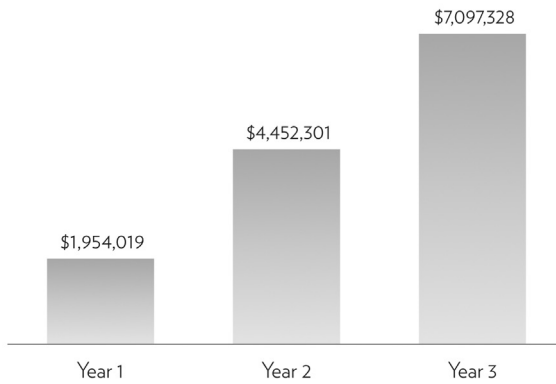
AmeriPride Services • ROI: 302%

AmeriPride Services deployed Ultimate Software's UltiPro solution to replace a legacy, on-premises HCM application with modern cloud technology. The company needed a platform that would support a multi-national operation and provide the analytics needed to support enterprise-level activities. Nucleus found that UltiPro enabled AmeriPride to achieve significant cost benefits by retiring the legacy program, eliminating manual processing, and improving the workflow process, resulting in increased productivity, improved employee and manager transparency with a self-service portal, and more accurate decision-making capabilities across the enterprise.

THE COMPANY

Headquartered in Minnetonka, Minnesota, AmeriPride is a uniform and linen supply company operating more than 115 production facilities and service centers throughout the United States and Canada. The employer provides linen, uniforms, floor mats, and restroom and cleaning products to nearly 150,000 customers every week. Founded in 1889 by George and Frank Steiner, the privately held company is still owned and managed by the Steiner family.

CUMULATIVE NET BENEFIT



KEY BENEFIT AREAS

The UltiPro HCM solution allowed AmeriPride to move from a manual, on-premises platform to a more efficient and less costly cloud application with improved reporting and analytics. Key benefits included:

- **Cost savings.** Elimination of the legacy platform has reduced direct HCM operating costs by 22 percent annually. Migration to a cloud solution eliminated the expenses of patches and upgrades and reduced IT staff needed to support the old application. Had AmeriPride remained with the previous vendor, the cost to upgrade was \$335k, not including software. The efficiency of the new application also decreased costs associated with onboarding new hires. The company was able to avoid hiring additional HR and payroll staff that would be needed to accomplish manual tasks.
- **Increased productivity.** AmeriPride has been able to standardize business processes across the enterprise and decrease costs associated with recruiting, onboarding new hires, and reduction of manual paper processes.
- **Increased manager satisfaction.** Managers now have direct access to their employee's HR information in UltiPro, data that was previously unavailable to them.

A manager can now access information for any point of the employee's life cycle with the company, from recruiting and onboarding and even for such times as when the employee is no longer working, delivering more pertinent data.

- **Improved decision making.** AmeriPride has achieved greater workflow management with improved visibility, reporting, and data insights now that all of HR and payroll data are on a single platform. Reporting capabilities are greatly improved and less complicated since they no longer require the manual intervention of consolidating data from two separate payroll systems.

BEST PRACTICES

Based on this deployment, we identified several best practices to be considered during selection and deployment of an HCM application. Collaboration and communication among the decision makers and the end users is essential to the development of an accurate needs assessment and concise request for proposal (RFP). A cross-function team to review proposals and recommend a solution should be developed early in the process with the goal of finding a solution that meets all requirements. And finally, a solution that is scalable with capabilities that meet the expected growth of the company should be a primary driver.

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Workday

The Workday solution spans core HR, payroll, time tracking, benefits administration, all of talent management and talent acquisition, workforce planning, and analytics.

Much like another large competitor upmarket, SAP SuccessFactors, Workday has much work to do in fortifying functionality for payroll and time and attendance. SAP SuccessFactors acknowledges its shortcomings here through publicly announced, transparent partnerships with providers of best-of-breed point solutions for time and attendance or scheduling. By

contrast, Workday may recommend that its customers turn to integrations between Workday and such providers, but the vendor appears unwilling to imply publicly that it needs this.

Just as with SAP SuccessFactors, we do not recommend Workday for employers that need anything but elementary functionality for time and attendance. In the meantime, fortunately, longstanding integrations with ADP, NorthgateArinso, AON Hewitt, and others shore up payroll for Workday customers. But we believe that Workday must seriously deepen its functionality at the epicenter of HCM if the vendor wishes to remain competitive with its peers.



CHAPTER 4

WORKFORCE MANAGEMENT

To comply with difficult-to-follow employment law, employers are benefitting from the maturation of highly capable single-suite options for workforce management in the cloud. A major change in the competitive landscape of technology for workforce management (WFM) is fully underway. The change is slowly unfolding and is affecting the larger, monolithic vendors, who are losing existing customers and new prospects to other vendors that reach out and win over users of older solutions, before those other vendors can pitch one of its newer products to the existing customer.

Through many analyses across all practice areas over the past most recent years, we have found that the cloud delivers more than twice the ROI compared to non-cloud technology deployments. Even so, companies continue to elect to have their technology privately hosted or deployed on-premises. Warranted or not, concerns over security may convince a user to deploy in a private cloud or on-premises. In other scenarios, union rules or regulations governing user data may compel them to do so.

We believe that those older, monolithic vendors are destined to lose market share. It's just that it won't seem like this for a while. Each vendor's existing customer base is vast, and attrition will take time to show. Nevertheless, we believe the confluence of factors mentioned in this report is pushing the market for WFM technology toward a tipping point: within a decade's time, closer to five years, the competitive landscape will look much different than today, in favor of single-suite options and cloud deployments. Employers will

continue to seek as much of WFM functionality (and the rest of HCM) as possible from a single vendor.



Workforce Management Value Matrix

Dot indicates current position. Arrow indicates trend in 2018 relative to others in the market.

ADP

ADP's upmarket suite for all clients employing more than 3,000 in staff is Vantage HCM. Some users may have global needs here and there, but Vantage HCM is not truly for global companies. Our analysis shows that the

solution can be expensive compared to a number of competitors' offerings. Meanwhile, approximately 70,000 employers employing on average 250 in staff are on Workforce Now today, but the solution is intended for organizations employing anywhere from 50 to 3,000 in staff. Our random analysis of user cases has encountered employers deployed an older version and receiving little notification of the situation from ADP. The vendor says 85 percent of Workforce Now users are on the current version of the solution. Targeted for 1–50 employees, ADP RUN has an average client size of 7 employees, and approximately 450,000 employers are on this solution. For this market segment, users may only need payroll. Here, ADP additionally faces stiff competition from capable, affordable vendors.

Our analysis appears to corroborate ADP's claim that fully native WFM-related deployments of the vendor's installation base are preponderant down market. Perhaps in an effort to draw down the need for Kronos functionality in certain deployments of Workforce Now, 2016 saw an array of improvements made to MyADP for Time and Attendance. We believe the need to pipe in extra-capable functionality for extra complex scheduling needs in WFM deployments is fine. ADP and other vendors have options here superior to Kronos.

In our analysis of deals involving cloud-based solutions from ADP versus other vendors, users have repeatedly noted that ADP continues to run payroll, apart from the rest of the solution, on a mainframe. The vendor says this is a mainframe multitenant application hosted and accessed via the Internet the same way a bank or financial institution is a cloud-based application also running on a mainframe. We believe the approach creates poor optics and cognitive dissonance for the vendor's business development team's efforts to present ADP's cloud-based solutions as modern technology for HCM. A cloud payroll solution appears to be in the works, but combine these challenges with the difficulties with fussy automation and manual workarounds that users of ADP have reported in our analyses, and we believe ADP faces an array of obstacles.

Ceridian

For the past several years, Ceridian Dayforce has been at the frontline of efforts to marshal all HCM onto a single application producing a single data set governed by a single rules engine. This architecture makes the solution particularly effective and organized in running the elements of WFM (e.g.,

payroll, time and attendance, benefits administration, and core HR). Our analyses show that Dayforce delivers the definition of real-time data processing to facilitate employers' compliance with complex employment law and deliver an uncommon level of visibility into the workforce.

Since Ceridian's acquisition of Dayforce, the vendor has executed multiple innovations and upgrades. In most recent years, the cadence of updates to product roadmap grew increasingly swift. This pace has slowed, but for a good reason: WFM functionality is the most mature within the Dayforce solution. Improvements at this point have become iterative—mainly because the most difficult work has already been successfully completed. Now, most product updates relevant to WFM are granular and build on usability. Recently, Ceridian has released updates for scheduling, analytics and reporting, and global compliance. Also, new functionality enables users to remain compliant with U.K. regulations regarding meals and breaks as they relate to an employee's age. The ability to manage European Union work contracts and patterns is now available in HTML-based Web forms. As well, for compliance with certain EU regulations, Dayforce can now send alerts to employees whose schedules fall outside their established work patterns.

In addition to all this, a new Dayforce Touch clock, Dayforce TUFF, is now available. Designed to withstand conditions found in hard labor environments, it's NEMA-class, short for National Electrical Manufacturers Association. Nucleus's analysis of user cases continues to unearth exceptional ROI for Dayforce.

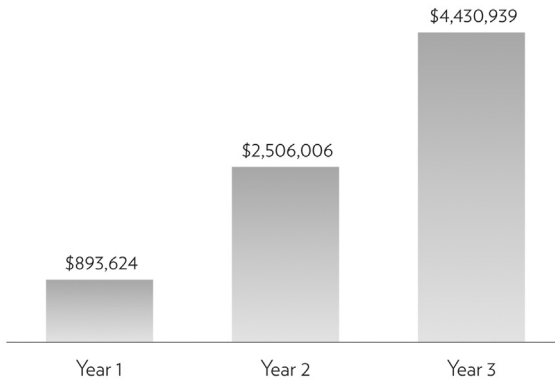


ROI Case Study: Ceridian Dayforce

Global Brass and Copper • ROI: 239%

To replace an older system for human capital management, Global Brass and Copper Holdings, Inc. (GBC) deployed Dayforce HCM. Nucleus found that Dayforce HCM reduced check printing costs, helped to automate compliance to reduce risk related to the Affordable Care Act (ACA), and improved productivity in payroll, core HR, and benefits administration.

CUMULATIVE NET BENEFIT



THE COMPANY

Through its wholly-owned principal operating subsidiary, Global Brass and Copper, Inc., GBC is a North America-based manufacturer of metals sold under the additional subsidiary brands of Olin Brass, Chase Brass, and A.J. Oster. The organizations employ more than 1,900 in staff. Target markets are many, such as housing, munitions, transportation, electronics, industrial machinery and equipment, and consumer goods.

KEY BENEFIT AREAS

With Dayforce HCM, GBC eliminated or reduced several costs. In addition, productivity gains accumulated as a result of the automation of workflow. Key benefits included:

- **Direct cost savings.** With Dayforce HCM, the annual SaaS subscription fee is close in price to that of the previous solution, but with the added benefit of several direct cost savings. These included a reduction in GBC's payroll error rate and eliminated fees for printing pay stubs and paychecks.
- **Productivity gains.** Gains found in the employer's several pay groups average out to 37 percent. Benefits

administrators have seen their productivity rise by 36 percent during annual open enrollment and by 35 percent in everyday administration. Through better manager self-service (MSS) and employee self-service (ESS), employees companywide have seen gains in productivity, too. Additionally, tighter integration with other systems eliminated repetitive, manual activity in meeting union mandates. Accounts payable also experienced productivity gains—whereas GBC used to receive at least 26 invoices, the number is now just one.

BEST PRACTICES

As implementation progressed, GBC learned that it needed to manually compile a number of spreadsheets and then share these with Ceridian. This was unforeseen and lengthened implementation, but not unduly. It's worth noting that lessons learned from this helped to inform programs that Ceridian later launched to help users of the vendor's older technologies migrate to Dayforce HCM.

As a perfunctory measure, GBC ran Dayforce payroll side-by-side with final payroll processed with the old system. This helped to identify and eliminate major issues ahead of going live. Post-deployment, HR initially contended with the same everyday inquiries that managers and employees used to ask in the absence of modern MSS and ESS. This waned as employees absorbed their training and grew comfortable with Dayforce.

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Epicor

Epicor offers a cloud-based WFM solution as a part of an HCM suite that integrates with the vendor's other solutions. This enables users to link WFM and HCM to other Epicor applications. Intended primarily for the manufacturing, distribution, retail, and services industries, functionality for WFM spans payroll, benefits administration, time and attendance, absence management, and scheduling. Predictive and other analytics help to identify

staffing needs and provide insight into trends, demand, and crisis staffing.

The time and attendance piece of the Epicor HCM suite can feed necessary information into another payroll application, if the employer uses something else. ESS and MSS save managers and employees time by providing them with means to see their information, improving communication. Several users have noted that a mobile offering would be a valuable addition to their Epicor HCM solution.

Epicor was purchased by KKR, an international investment firm, as part of a plan to expand global growth and continue to build on opportunities for delivering leading cloud-ready technologies. KKR, formerly known for its leveraged buy-outs, is now considered a multinational private equity investment firm. Since then, Epicor HCM has developed integration with the latest release of Epicor ERP, featuring ERP time and attendance integration among other new features.

Infor

WFM from Infor delivers core functions focused on workforce planning. These include labor cost controls, enhanced operating efficiencies and agility, time and attendance, scheduling, absence management, and task management. For benefits administration, there is Infor Human Resource Management Benefits Administration. Lawson-originating, COBOL-based, SaaS-delivered payroll covers regulatory reporting, employee law compliance, and payroll taxes. Other global regional packs deliver localized payroll capabilities.

Infor can deliver WFM as an add-on bundle to the Infor HCM Suite of services. Integration here is seamless and furnishes users with access to all the Infor applications. Compliance is robust. Infor has met new rules from the EU (such as the General Data Protection Regulation – GDPR) and the U.S. Department of Labor (DOL) with automated solutions to support employers' related needs.

WFM from Infor integrates with Infor Financials, a cross-functionality that underscores the competition that Infor brings to other vendors. We have found that this sort of integration yields cost savings for employers, and aligning payroll and other efforts in real time with the GL can boost productivity.

As of late, Infor has reported significant growth, with notable expansion in India, Africa, and the Middle East. This is a logical result of the vendor's

heavy investment in the region, and we believe its position in the market remains secure. However, this position will hinge on the vendor's continuing commitment to provide users with a clear path to the cloud and further synthesize its modules for WFM and HCM.

JDA Software

JDA Software continues to increase in usability and functionality. The solution focuses solely on time and attendance, as well as scheduling. JDA has secured several well-known retailers of late—new customers in the process of implementing JDA functionality for WFM. Central to the JDA solution as it pertains to WFM is a schedule optimizer. Functionality does not extend beyond these elements, but our analyses continually show that the solution is perhaps the best for retail environments where floor associates' time on the job must hew as closely as possible to sales history, foot traffic, shipments, customer behavior, and activity in e-commerce and in the warehouse and elsewhere—which the vendor calls, collectively, the omnichannel. Looking at supply chain management (SCM), JDA can readily pull real-time data from these areas of the enterprise to inform employee scheduling in a way that makes results particularly accurate. JDA integrates with the employer's existing payroll solution.

In implementing the solution, JDA can bring 62 weeks' worth of historical data from the omnichannel and elsewhere into the process, from the onset. This jumpstarts the technology's ability to coordinate WFM and the supply chain right away. JDA originally obtained its current functionality in scheduling when it acquired RedPrairie, in Q4 of 2012. Since then innovation in the solution has been methodical and significant. In early Q4 of 2016, notably, JDA finalized a recapitalization through a \$574m equity investment. The recapitalization bodes well for innovation across the vendor's portfolio.

Employers will continue to seek as much of WFM functionality (and the rest of HCM) as possible from just one provider. Even so, some industries will always need mile-deep functionality in scheduling and time and attendance. This level of capability is something that many players, even market leaders, cannot provide—and will never provide due to constraints related to cost or their solutions' very architecture. JDA isn't going into deals where scheduling isn't special. The typical employer looking for JDA has a pronounced pain point, a sophisticated need, in this area. We believe, therefore, that JDA will continue to grow as a must-have WFM point solution in retail.

Kronos

Kronos is one of the oldest solutions for WFM in the marketplace. Best known for its large enterprise WFM solutions for employers with significant populations of hourly staff, the vendor offers a multitude of applications. Since the publication of last year's report, Kronos announced two acquisitions to support and enhance current offerings. In October 2016, it purchased Datamatics Management Services Inc., a provider of time and labor management services and solutions that will allow Kronos to offer its suite of services to Datamatics' clients. Recently, Kronos acquired Financial Management Solutions Inc., a provider of WFM and analytics applications for credit unions and the retail banking industry. This acquisition is intended to expand Kronos's services in the financial business industry, especially in branch operations.

These acquisitions were intended to support a micro-vertical strategy. The vendor's WFM offerings are promoted as tailor-made to meet industry-specific needs across a plethora of verticals. But we doubt the vendor's solution, as a broad suite for HCM, can really handle every possible industry-specific need in scheduling. The effort to incorporate an acquired vendor's technology or meld it with the acquirers is significant.

Although Kronos offers a full suite of solutions, clients have mentioned areas of concern such as synchronization issues with large files, the need for improvements with optical character recognition, and the lack of intuitive site navigation. An IT manager suggested that Kronos works best if there is a dedicated technician on site with extensive Kronos understanding and capabilities. This is not the kind of scenario that truly modern technology for HCM can facilitate.

For many years now, Kronos has survived by way of a large base of legacy users that deployed its technology for time and attendance before the advent of the cloud. In parallel, the vendor has offered technology notably capable of handling complex scheduling requirements, such as those for union rules. But Kronos's innovation in the cloud lags, and its edge in accommodating employees' complicated scheduling requirements appears to be slipping.

Namely

Namely is SaaS-delivered and based in a multitenant cloud. Namely can accommodate users who employ up to approximately 3,000 in staff. On

average customers employing 200 in staff make up the company's installation base. Namely says it competes with Zenefits, Paycom, Paychex, Paylocity, TriNet, ADP, and Ultimate Software. The claim squares with Nucleus's analysis of user cases. Roughly three-fifths of Namely's new business wins are employers retiring a solution from ADP or Paychex.

The Namely system is an application for WFM more than anything else, and the vendor primarily markets itself to employers as a solution for their needs in payroll, core HR, time and attendance, and benefits administration. We see Namely as a highly competitive, capable solution especially for employers that are just beginning to exit small-size status.

[Paychex](#)

Paychex offers a full-service HCM platform for SMBs. The suite includes a robust WFM module, Paychex Flex, a modular cloud-based solution that delivers all aspects of WFM—including, of course, payroll. That Paychex provides functionality for payroll is a perfunctory statement. Paychex Flex integrates with the GL, benefits administration, time and attendance, compliance, and core HR. Mobile usability is sound, as is ESS. The UI is intuitive.

In deals, Paychex most often encounters ADP RUN. Paychex's functionality for time and attendance comes in the form of three different products. The most robust of these, Flex Time, can handle time and attendance for organizations employing up to 7,700 in staff.

Paychex has the ability to act as a broker or agency—one of the top 25 in the industry—with tight integration into payroll. An employee can select health-related benefits through the system, which immediately pipes the information into the payroll application, handling the situation as the broker. Furthermore, through an acquisition, Paychex has been a professional employer organization for many years. Paychex will establish a relationship with a business to reduce costs for various benefits, if the employer is a good risk. A human resource generalist is available for a one-on-one relationship as advisor and resource to the employer.

As usability and functionality continue to increase, Paychex is becoming an ever-smarter option for SMBs as they mature into needing their first solution covering payroll and other elements of WFM.

Paycom

Paycom remains an excellent option for SMBs seeking a straightforward SaaS solution for time and attendance and payroll. Paycom runs in the cloud atop the architecture of a single database based on the employer's payroll roots. This structure makes the application appealing to employers since the application is based on the payroll database with significant security protections and delivered as a single application.

The vendor continues to fortify its offerings in WFM, which at Paycom comprises time and attendance, payroll processing, and benefits-related compliance. Our analysis of Paycom users found consistent responses. Drawbacks they noted were some limitations in functionality and reporting. Positives included ease of use, a dedicated account manager, frequent automatic updates, and competitive pricing.

With a focus on security and compliance, Paycom has recently invested in the core applications. Paycom has carved out a successful business model in a niche market for SMBs and extended its offerings into the HCM space to complement its WFM core business modules. We expect Paycom to build on its success in the SMB market and anticipates additional forays into full-service HCM offerings.

Paycor

Paycor is a cloud-based suite that spans much of HCM. For WFM, the solution comprises payroll processing, core HR, time and attendance, reporting, benefits administration, and compliance reporting. Paycor recently expanded its suite's mobile enablement. We have also noted 401K-related automation and integration, as well as new functionality for compliance and benefits administration.

A majority contingent of Paycor's existing installation base is employers of 50 or fewer in staff. This places the vendor in competition with the likes of ADP, Namely, Zenefits, and others targeting this demographic. At the same time, net-new customers tend to be users with approximately 100 employees. To feed its healthy growth, Paycor benefits from a strong network in the banking industry yielding a steady stream of referrals. Because of the vendor's strength in handling users' tax-related needs, a second large referral network exists among certified public accountants (CPAs). Health insurance brokers are an emerging source of referrals, too. As Paycor continues to build

on its WFM capabilities, the vendor's trajectory will remain strong.

Paylocity

The Paylocity solution is for both medium- and enterprise-size companies. Its SaaS-delivered, cloud-based solution for WFM features payroll, core HR, time and labor, and benefits administration. As a registered reporting agent for the IRS, Paylocity offers a complete tax filing service. Payroll data integration helps ensure ACA compliance, even as regulations continue to evolve.

Paylocity's integrated online tools, increased functionality, usability, and mobile application provide a core level of capabilities in WFM and support our evaluation. We expect the vendor to continue to invest in its technology throughout 2017 and into 2018.

SumTotal Systems

Skillsoft acquired SumTotal in October of 2014, and the two entities have elected to remain separate business units as they continue a steady cadence of interconnected upgrades. SumTotal recently announced new features to the SumTotal Talent Expansion Suite, notably bringing WFM, talent management, learning, and recruiting onto a single platform.

For these and other reasons, it is notable that users can obtain the latest version of the SumTotal solution, regardless of whether the customer chooses SaaS-delivered via multi-tenant cloud, privately hosted in SumTotal, or on-premises deployments. To our knowledge, this scenario is unique among vendors currently. Most that continue to offer on-premises deployments tend to do so because they still struggle to develop various aspects of functionality in the cloud. But SumTotal does not have this problem. Because the SumTotal suite is multitenant-ready, the vendor can use the tenant model in private cloud and on-premises scenarios to support what the vendor calls a distributed enterprise, and this scenario enables rapid deployment. The initial tenant rollout becomes a template, and the model for deployment improves administrative control for each business unit, country, or subsidiary.

SumTotal Workforce Management spans time and attendance, scheduling, absence and leave management, and payroll data processing. To conduct predictive analyses and develop workforce models, managers benefit from a holistic, real-time view of data within the system. Alerts, notifications, and call-outs are efficient, with robust mobile technology. The SumTotal

Core Platform provides a virtual system of records, combining SumTotal-originating data with data from any other system with which the solution integrates. The platform also unifies SumTotal Workforce Management with the Talent Expansion Suite. Because of the fully matured Skillsoft integration, learning content surfaces as it becomes relevant to WFM activity.

In its latest release, the vendor issued a sweeping upgrade to its suite which features advancements such as enhanced suite integration, a new user portal, fully integrated shift trading capabilities, standardized archiving, and an upgrade in advanced reporting. These methodical improvements validate and solidify the vendor's positioning the Value Matrix.

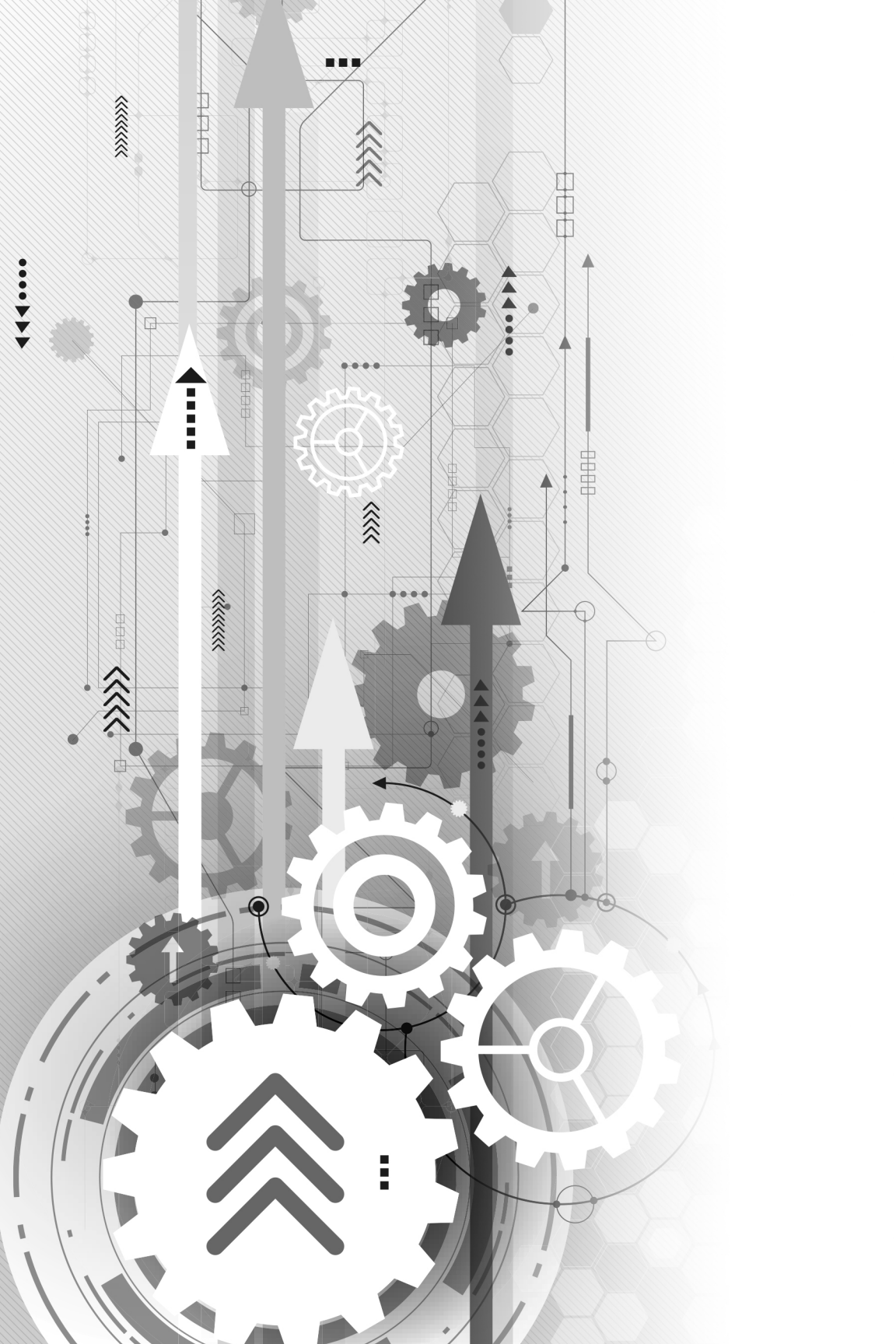
WorkForce Software

WorkForce Software continues to improve in usability and functionality. The WorkForce Suite, the solution from WorkForce, spans time and attendance, staff scheduling, absence and leave management, labor analytics, and fatigue management. WorkForce does not offer functionality for payroll but integrates readily with most payroll applications. All new deployments of The WorkForce Suite are in a SaaS-delivered multi-tenant cloud. Lingering on-premise deployments will either remain so by customer preference or eventually move to the cloud.

WorkForce tends to focus on organizations employing 5,000 or more in staff, but the solution works for users whose employee counts are smaller. Key target markets include manufacturing, education, utilities, financial services and insurance, and the public sector. Shortly following the publishing of last year's report, WorkForce announced that it had acquired Workplace Systems. The WorkForce Suite now encompasses the robust capabilities of Workplace Systems. Employers continue to move toward obtaining as much of WFM functionality (and the rest of HCM) as possible from just one provider. Furthermore, the vendor is beating its competitors in providing scheduling as a point solution. Scheduling is an area where best-of-breed vendors continue to find a demand with users whose labor force's needs are exceedingly complex. This demand will continue, and other end-to-end providers will have to build out their scheduling capabilities to handle the complexities that a solution such as WorkForce's can.

Functionality supporting compliance with the ACA, Fair Labor Standards Act (FLSA), and Family and Medical Leave Act (FMLA) is robust. The solution is adept at handling sick leave and widely varying regulations, as well

as informing performance management with employees' attendance data to spur system-generated written warnings. Scheduling managers can track employees' productivity against the norm, and when an employee works for more than one scheduling manager, each can see what others have scheduled. The system aptly handles overtime regulations, so managers can anticipate whether they are at risk of falling out of compliance. They can then make the necessary adjustments ahead of time.



CHAPTER 5

TALENT MANAGEMENT

There has been little movement recently in the talent management market. The biggest exception is Saba Software, which has charged forward on the heels of the company's decision to acquire Halogen Software to offer mile-deep, end-to-end specialization at the intersection of performance management and learning. It's a wise competitive move, and we believe 2018 will touch off a fire sale for vendors that fail to develop sound strategies to survive and thrive in the new normal—where everything they do today is also available from full-suite providers of technology for all of HCM.

A fire sale to acquire vendors of end-to-end technology suites solely for talent management is about to ignite. It will take a few years to play out, but 2018 is when all the markings will become undeniable. Among these vendors, a bought or be bought mentality is brewing. Also-rans and me-too vendors will be gobbled up or forced to radically change their business models.

Why? With technology for talent management, the ROI is there, but the value is not as straightforward as that of payroll, time and attendance, or other central functionality for HCM. Meanwhile, to buoy their departments' strategic relevance to the organization, HR managers have figured out they need end-to-end HCM suites and the holistic data these systems produce, to make sense of the analytics that talent management itself produces.

Full-suite HCM players are bringing their A-game. When capable technology for talent management is available in a one-vendor suite that features functionality for all of HCM, employers are usually better off staying put.

The logic in seeking an end-to-end suite solely for talent management from a separate vendor makes vanishingly little sense when the capabilities already there are competitive and progressive.

Ceridian is an example of the high caliber of full-suite players recently entering the fray of talent management. The vendor's relatively new offerings for talent management are compelling. Providing similarly capable functionality for talent management, full-suite vendors that have been at the talent management game for longer are Ultimate Software, SumTotal Systems, Oracle, and SAP. The idea that an employer ready for talent management ought to obtain the functionality in the form of a full-breadth standalone suite is facing growing pressure.

To position themselves for this shift as the market for standalone full-suite talent management commences its long fade away, vendors are taking stock of their strongest suits and building businesses around those—or buying other vendors to achieve the mile-deep end-to-end specialization they want. In our estimation, it's a viable way for these vendors to retain relevance and grow in stature as the landscape for technology in talent management enters this latest evolution. Following are two examples:

LEARNING AND PERFORMANCE MANAGEMENT

Since this new climate began to take shape, Saba Software's acquisition of Halogen Software provides the best example of one player buying another in order to achieve the cross-functional specialization desired. The idea is to marry two areas of talent management that go hand-in-hand, in this case learning and performance management. Among the best vendors of technology for learning, Saba had functionality for performance management before acquiring Halogen, but the latter's capabilities reach deeper, and the acquisition significantly broadens Saba's customer base for performance management specifically. Furthermore, with each vendor's ability to facilitate the trigger-based approach for both learning and performance management, we consider the combination a major leap forward.

ONBOARDING

SilkRoad has made the smart decision to position itself as the go-to solution for high-end, strategic onboarding by broadening the understanding and concept of onboarding's applicability beyond the realm of talent acquisition. Onboarding is where the vendor happens to excel most, and the move repositions SilkRoad's most noteworthy functionality as a mile-deep end-to-end

specialization in straddling a broad cross-section of the workforce lifecycle. This also leaves SilkRoad poised to bring in its innovations in performance management (SilkRoad Activate) as opportunities arise.



Talent Management Value Matrix

Dot indicates current position. Arrow indicates trend in 2018 relative to others in the market.

BambooHR

A viable choice for SMBs, BambooHR offers an applicant tracking system (ATS) plus elements of HCM outside talent management. BambooHR's ATS integrates with a broad array of HR software providers' solutions. In

BambooHR, role-based information defines functions. Integration with the rest of the solution is unimpeded.

Regarding the rest of the system, BambooHR has developed and deployed native functionality for payroll. Our analysis of user feedback finds that some have encountered difficulty integrating BambooHR with third-party payroll applications—not an uncommon scenario among vendors industrywide. So, we believe the latest is a smart move. Talent acquisition delivers the most value where talent acquisition intersects with central functionality for HCM. Nowhere is this intersection more potent than at payroll, the most essential functionality for employing people.

Users report accuracy in benefits administration. They also report satisfaction with the mobile application. We have noted that BambooHR had the potential to move into a higher functional position in the market as the vendor introduced new capabilities. The addition of payroll is a step in the right direction, and we await new capabilities in talent management specifically.

Cegid

A cloud-based, SaaS-delivered solution for talent management, Cegid is the new name for Technomedia. Through the acquisition, Cegid has been able to expand into more than 75 countries in sectors such as financial, manufacturing, government, health, education, and distribution.

Talent management from Cegid rests on a single line of code, which we believe to be a benefit here and elsewhere in HCM. Modular applications in talent acquisition and onboarding, performance management, career and succession planning, compensation management, learning and development, and core HR are available standalone or as part of an integrated suite.

Our historical analysis of users' experiences with Cegid finds them extolling the solution's reporting capabilities and the vendor's customer service. Customers point to the solution's ability to accommodate complex global organizations. Some users express dissatisfaction with some inflexibility of customization. We note, however, that customization beyond configuration is not necessarily the forte of any cloud-based solution.

Ceridian

Ceridian has executed faithfully on an aggressive product roadmap. The vendor has amassed new functionality in a logical progression for HCM with

talent management coming for the most part last—but not least. Moreover, for talent management Ceridian began with recruiting. This also makes sense, as our analysis shows talent acquisition delivers the most value after workforce management. WFM is Dayforce's origins, and after rounding out the epicenter of HCM and recruiting, Ceridian added the rest of talent acquisition (i.e., onboarding) and, then, performance—which is where the bulk of remaining gains in productivity originate within talent management.

Ceridian has recently launched new functionality for compensation planning benefits. Among the capabilities available, users can define compensation budgets for base and variable pay, allocate compensation pools to teams, conduct scenario-modeling for managers, and give employees Total Rewards Statements. The learning management system, too, rests on the single application, the central characteristic of the Dayforce architecture. Drawing on machine learning algorithms applied to the single set of data found in the application, Dayforce now also offers predictive analytics that will eventually be available throughout the application and for no additional SaaS subscription fee. This is of additional importance to talent management, and the focus first is on helping employers identify employee flight risk, allowing managers to potentially have better discussions with their team members to identify the triggers of high turnover and address them.

In the Dayforce solution, interactive dashboards heavy on visuals present employee information, drawing from the single data set of Dayforce. Ceridian recently opened Dayforce APIs to third-party developers intent on creating applications designed to complement and work in concert with the suite. Our analysis of customers' use of Dayforce continues to find their experiences to be strong and positive. Many point to the comprehensiveness of the human resource information system (HRIS) and Dayforce's abilities in reporting.



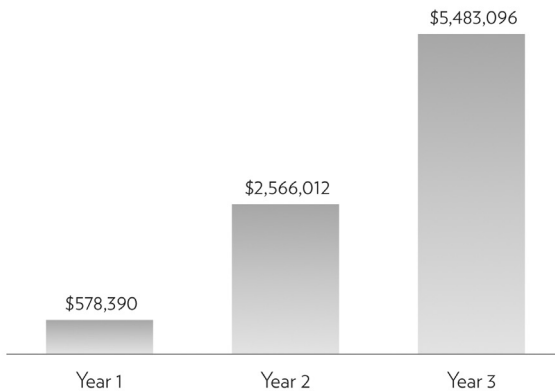
ROI Case Study: Ceridian Dayforce

Rubio's Coastal Grill • ROI: 148%

Rubio's Coastal Grill deployed Ceridian Dayforce HCM application to streamline and automate HR processes with a single-source cloud application. The existing manual HR processes for Rubio's could not keep up with the

company's continued expansion, and it needed a solution that would support its growth. Nucleus found that the Ceridian Dayforce solution enabled Rubio's to reduce labor costs, eliminate expenses related to manual, paper-based processes, improve productivity, and increase transparency with standardized operating procedures across the entire enterprise.

CUMULATIVE NET BENEFIT



THE COMPANY

A coastal-inspired casual dining restaurant chain specializing in Mexican-inspired seafood, Rubio's Coastal Grill is based in Carlsbad, California. The company operates more than 200 restaurants in Arizona, California, Colorado, Florida, Nevada, and Utah. Founded in 1983 by Ralph Rubio with the "Original Fish Taco" recipe, the company returned to private status in 2010.

KEY BENEFIT AREAS

The automated and streamlined Dayforce solution enabled Rubio's to eliminate manual processing and speed information flow. Key benefits of the project include:

- **Cost savings.** The functionality of Dayforce has enabled the company to eliminate several costs associated

with separate software for the preparation of W-2 tax forms and talent acquisition, all included in the Dayforce solution. By eliminating manual processing and the paper costs associated, the company markedly reduced the incidence of redundant information and misfiled documents. The single-source solution has also reduced data entry times and the risk of human error while entering information.

- **Avoided costs.** Automation and increased productivity have prevented the need for additional hires in payroll and administration. Rubio's anticipated they would have needed to hire an additional payroll clerk and an additional clerical administrator to manage the same number of employees currently working.
- **Employee self-service.** The Dayforce application has improved employee access to personal data, scheduling, shift swapping, and payroll information. Due to the improved accuracy of the data the employees can access, they have fewer questions for HR and store managers and spend less time on HR issues.
- **Improved productivity.** Both general managers and assistant managers can focus their time on value-added activities such as customer service and increasing sales with the time saved from the automation of HR services.

BEST PRACTICES

The complexity of managing and monitoring hourly staff in a variety of locations requires an HR platform that combines scalable functionality with ease of use for staff. Additionally, the company's commitment to training and significant change management efforts helped successfully roll out the system.

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Cornerstone OnDemand

Cornerstone OnDemand is a single application, cloud-based and SaaS-delivered, for all of talent management. For companies employing fewer than 250, there is Cornerstone Growth Edition. Cornerstone OnDemand is for organizations employing 250 or more. The vendor's recent product roadmap reflects a logical progression of evolution in the solution.

Notably, Cornerstone recently rearranged its capabilities in packages tailored for its current and future customers' differing needs: Cornerstone HR, Cornerstone Performance, Cornerstone Learning, and Cornerstone Recruiting. Cornerstone also recently overhauled its mechanism to deliver learning-related content. The system's machine learning continually analyzes employees' professional profiles and learning activity so that it may deliver content that is as relevant as possible to any given employee at any given time. The vendor further bolstered its analytics-related offerings to help users measure employee engagement and performance. These analytics are threaded throughout all the new suites and are unavailable as a standalone option. Cornerstone also has a program designed to simplify and tailor implementations of its software in the interest of expediting them.

On the balance, we believe Cornerstone continues to innovate wisely and at an admirable pace on an exceptionally solid solution for talent management.

Deltek Talent Management

Deltek Talent Management spans a broad cross-section of hosted talent management modules—recruiting, onboarding, performance management, career development, succession planning, learning, and compensation planning. The solution complements Deltek's enterprise software for government contractors, professional service firms, and other project-based businesses globally.

Our analysis finds that, across this broad spectrum, Deltek users benefit from project-centric design and functionality, see increases in visibility and mobility, and reduce their management costs. Our analysis of users' experiences finds some customers wishing that more content in the system were editable; they attribute that lack of functionality in this regard to the system's unified nature. Even so, many customers think the system is well-suited to the industries Deltek targets, and users extoll the vendor's customer service.

Epicor HCM

Epicor HCM's solution is designed for users of 100 to approximately 5,000 employees. In late Q3 of 2016, multinational private equity firm KKR & Co. L.P. completed its acquisition of Epicor. The vendor offers functionality across a broad cross-section of HCM, with capability concentrated in WFM. As of 2016, Epicor integrated Epicor HCM with its flagship Epicor ERP solution, meaning manufacturers using the vendor's solutions may now integrate functionality such as employee leave and actual time worked. This is a part of the vendor's industry-specific strategy.

For talent management, the vendor offers recruitment, onboarding, performance management, training, and employee development. The application is available as hosted single-instance, via SaaS, or on-premises. Target industries include manufacturing, distribution, retail, and services.

Epicor recently released a new UI. Our analysis of users' experiences suggests that the new UI is welcome. Also of note, enhanced analytics are on the horizon in the form of a recently released analytics offering as seen in other Epicor solutions. Users who are repeat customers challenge their peers to find a system with better end-to-end capability in HCM. Customers point to the quality and ease of reporting as another strong suit.

Greenhouse Software

A cloud-based, SaaS-delivered solution for talent acquisition, Greenhouse Software is best suited for growing medium-sized companies. Greenhouse also has CRM functionality with the objective to give a user greater control over managing talent pools with, for example, discrete workflows. The system will automatically present the user with jobseekers best-suited to a new open position. There is also predictive analytics. Machine learning capabilities within the system help users predict the time it will take for any given prospective new hire to go through the onboarding process.

Our analysis of user feedback found some clamoring for CRM from the vendor, so it appears that the launch came at a good time. Others find mobile usability fair for candidates, but difficult for administrators. Aside from this, users' experiences are generally positive. They laud the utility of scorecards and interview kits found in the system, the intuitiveness of the UI, and the way the vendor provides an end-to-end solution for pre-hire talent acquisition.

Haufe-Umantis

Cloud-based and SaaS-delivered, Haufe-Umantis provides an ATS, performance management and goal setting, compensation planning, career development, learning, and succession planning. Depending on the target market, the vendor competes with Workday, Oracle, SAP SuccessFactors, Cornerstone OnDemand, Lumesse, and Talentsoft.

Haufe recently modified the release cycle for applications. The new schedule means that all users will now receive minor updates every two weeks and a major update twice a year. In December of 2016, the vendor announced that it would increase its focus on end users. Specifically, to respond to users' requirements, Haufe has embarked on a long-term effort to analyze their behavior and level of satisfaction. One of the first products to undergo this analysis has been the Hiring Manager.

In 2016, we noted that functionality designed to support trigger-based performance management was expected to be deployed in 2017. Since, word of any development on this front has yet to surface. In analyzing users' experience with Haufe's solution, we find that the solution is adept at helping them foster engagement between managers and their staff. The solution, users report, helps them to identify influencers able to emerge as leaders within their organizations.

HireVue

Cloud-based and SaaS-delivered, HireVue Team Acceleration consists of HireVue Build Suite to focus on talent acquisition and HireVue Coach Suite to help with high-touch interaction between managers and their staff post-onboarding. HireVue Velocity is available for organizations with needs in high-volume hiring. AI analyzes video interviews to determine the level of engagement, motivation, and empathy a job candidate might display, if hired. These capabilities, along with predictive analytics, help customers to hire for, build, and coach teams. Meanwhile, Team Acceleration provides data on candidates to interpret resumes ahead of the interview—relieving hiring managers of a time-intensive activity that detracts from their ability to focus—through HireVue video, on candidates' talents.

Our analysis of user feedback finds some customers noting a lack of ability to synchronize resumes with an ATS. Some also note a need for more robust analytics reporting and better integration with other solutions. Additionally,

interviewees occasionally encounter issues, users report. Most point to an exceptional ease of use, however.

IBM Watson Talent

In 2012, IBM acquired Kenexa, the origins of IBM's functionality for talent management. Comprising sourcing and recruiting, compensation and rewards, employee engagement, learning, employee assessments, onboarding, and performance management, the solution later became IBM Smarter Workforce. Today, talent management functionality from the company is known as IBM Watson Talent, which combines Kenexa-stemming functionality with capabilities found in IBM Watson.

Fundamentally, IBM Watson is AI. Notwithstanding our reservations regarding the reality versus hype of AI today, the NLP and analytics found in Watson and other vendors' solutions do augment functionality for talent management in ways that are transforming HR's relationship with this area of HCM. To the extent that machine learning informs IBM Watson Talent, this is where the most interesting potential upside resides. Our analysis finds that if AI delivers any ROI yet, it's in machine learning.

In late 2016, the vendor launched MobileFirst for iOS Apps to help users combine mobile applications from their enterprise with machine learning. We have analyzed users' experiences and users say that the solution has a high level of configurability, but that it struggles to integrate with other applications in the IBM suite. Functionality for recruiting received high marks.

iCIMS

iCIMS' cloud-based and SaaS-delivered solution provides functionality for recruiting and onboarding through a branded career portal. Additionally, UNiFi, a platform as a service (PaaS) framework, helps users integrate with vendors in iCIMS' large partner ecosystem. A streaming API integration became live in April 2017 to support especially high-volume data transfer. iCIMS is also a featured integration in ADP's Marketplace. iCIMS, a foundational ATS partner of Google's, announced a partnership with the search technology provider to help candidates find jobs. Google now detects and surfaces publicly posted jobs from the iCIMS customer base as soon as the job becomes available.

Our analysis of user feedback finds that customer support at iCIMS can

fall short of expectations or exceed them, depending on the user, so consistency may be an issue in this area. Additionally, some users report it is difficult to run reports combining data from different sets—though others point to the ease with which they can create, execute on, and automate reports. Among the positives, users say configuration tools for administrators exhibit much flexibility. Customers give the vendor high marks for listening to them, readily apparent in new features released with most SaaS updates.

Lumesse

Cloud-based and SaaS-delivered, Europe-based Lumesse offers Empower, which is well on the way to comprising the full breadth of functionality for talent management. Empower is SaaS-delivered and fully in the cloud. There remains a full suite for talent management in a privately hosted environment, too. Modules in Empower that are now live are Perform, Grow (i.e., succession planning, career pathing, and development planning), Reward (i.e., employee recognition and compensation planning), Learn, and Core HR. Next up to be live is Recruit. Then, Onboard will launch and, finally, Ideate—a way to foster innovation by facilitating collaboration. Lumesse says the largest contingent of users is showing interest first in Grow. Next in popularity is Learn.

Learning Gateway is Lumesse's LMS, also encompassing coaching. Onboarding is available through a cloud-to-cloud integration linking TalentLink and SilkRoad. For talent acquisition, there is also TalentObjects, built for the mySalesforce Mobile Platform. For mid-sized to large companies, for talent acquisition there is TalentLink. For enterprise users, there is i-Grasp. In talent acquisition, Lumesse excels in functionality for large, complex global organizations with multiple brands.

Oracle Talent Management Cloud

Oracle Talent Management Cloud, in the Leader quadrant, is cloud-based and SaaS-delivered. Functionality spans sourcing, recruiting, employee development, performance management, learning, retention predictors and indicators, and talent acquisition. Oracle's pace of innovation is aggressive. Learning has grown crowd-sourced and collaborative. Administrators may now create rules to automatically enroll workers exhibiting various shared criteria in learning communities. For mobile, a chatbot understands

questions, and the application integrates with a smartphone's voice recognition functionality.

Elsewhere, Decision Sciences—what Oracle calls its machine learning capabilities—infers actions by any one jobseeker, for example, based on the aggregate actions of others like the jobseeker. Additional functionality includes mobile learning, an expanded calculation rating for rating employee performance, improvements to site configurability in sourcing, and enhanced integration of interview scheduling.

PageUp People

PageUp People is a unified cloud-based solution for recruiting, onboarding, learning, performance management, and succession planning. The application is good at facilitating contingent and contract labor. As do many solutions for candidate relationship management, the mobile recruiting application follows the principles of CRM. An analytics dashboard informs the activity of recruiters and managers.

Our analysis of users' experience finds most in some way saying the UI is clean and straightforward. Functionality for talent acquisition is strong, according to their feedback—including integration with onboarding. Advanced configuration can be a challenge for administrators.

PeopleFluent

PeopleFluent is based in the cloud and delivered via SaaS. The vendor's suite offers functionality for talent acquisition, onboarding, performance management, professional development, workforce analytics, learning management and content, succession planning, organizational planning, compensation planning, and workforce compliance.

Functionality for talent acquisition from PeopleFluent is designed for high-volume hiring scenarios. In deals involving just recruiting, unsurprisingly, the vendor encounters a range of existing and upstart point solutions. PeopleFluent's technology accommodates needs around talent management for a contingent workforce, too.

PeopleFluent targets the large enterprise market: users employ on average approximately 29,000 in staff. One of the solution's strengths is its ability to help users comply with regulations related to the Office of Federal Contract Compliance Programs. An emerging trend from the vendor is the rise in

deployment of its Talent Productivity Platform, which provides contextual learning, communication, social collaboration, and video as part of the talent management process, and can also unify the UI for other HCM vendors whose capabilities integrate with PeopleFluent's and provide a single dashboard for employees across all HR processes and systems.

Saba Software

Saba Software combines cloud-based, SaaS-delivered functionality across recruiting, onboarding, learning and development, succession and leadership planning, compensation planning, performance management, organizational management, and analytics all largely focused on enterprise customers. The acquisition of Halogen Software, earlier in 2017, brings formidable competition to SAP SuccessFactors, Cornerstone OnDemand, and Oracle Talent Management Cloud and otherwise positions Saba favorably for the competitive landscape.

Recently Saba announced the launch of Saba Discovery, a learning record store, along with richer support for micro-learning and gamification in Saba Cloud and other tools designed to help organizations track and leverage employees' informal learning. The functionality lets users infuse on-the-spot and employee-led learning, which takes place outside the conventional confines of on-the-job training, into official learning efforts. Saba's mobile application offers real-time delivery of feedback, recognition, coaching tips, and development ideas. From a mobile device, users can schedule one-on-one meetings and share agenda topics for these.

SAP SuccessFactors

In the Leader quadrant, SAP SuccessFactors is a cloud-residing, SaaS-delivered solution spanning the full breadth of talent management and especially strong in learning and performance management. SAP Jam is the social media overlay for SAP SuccessFactors. SAP SuccessFactors also has a career site builder enabling employers to create website designs for management and recruitment. A single LMS undergirds internal and external activity in the vendor's learning marketplace and integrates with SAP Hybris.

In analyzing users' experiences, Nucleus has encountered mixed feedback on the caliber of customer support for SAP SuccessFactors. Additionally, some users report that the system is slow to process data. That said, functionality

from SAP SuccessFactors for talent management is among the very best available in the industry, Nucleus finds.

SilkRoad

SilkRoad altered its strategy considerably—and smartly. The vendor has assiduously deployed functionality and made business decisions that make it a straightforward, intuitive partner for Microsoft. For example, functionality compatible with Office 365 applications continues to build. Meanwhile, SilkRoad’s capabilities in self-coined “appification” let users design and generate micro applications that meet their needs. This appification is essentially PaaS, but what’s different is that the vendor uses it, too.

More recently, SilkRoad has made significant strides in building functionality that reflects the trigger-based approach to performance management. SilkRoad Activate enables employers to create individualized, personalized career paths and engagement for individual employees. Integration with Office 365 and with appification is standard with SilkRoad Activate, which comprises recruiting, onboarding, Agile Performance, and learning. Features include analytics applications such as recruiting and onboarding dashboards, business applications and tools for organizations to create their own applications (i.e., appification), and experiences tailored for employees, managers, and HR staff.



ROI Case Study: SilkRoad Onboarding

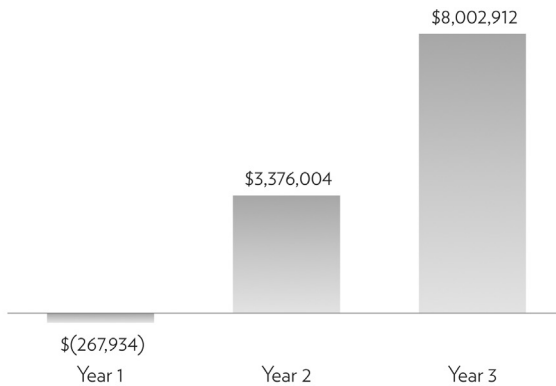
General Electric • ROI: 665%

Global Operations, General Electric’s (GE) shared services, deployed SilkRoad Onboarding to replace a homegrown, largely paper-based, and mostly unautomated system for onboarding employees company-wide. The system, which the company has internally branded as GE Hire, reduced costs related to printing, mailing, and the processing of Forms I-9. It also improved productivity for staff whose jobs intersect with onboarding workflow.

THE COMPANY

A Fortune 500 company, GE bills itself as “the world’s Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive and predictive.” The company employs around 300,000 in staff in approximately 130 countries.

CUMULATIVE NET BENEFIT



KEY BENEFIT AREAS

Automation of workflow across the global organization has eliminated costs, improved productivity, and helped the company to standardize onboarding globally. GE’s ability internally to cast SilkRoad as GE Hire has led to consistency in employer branding. Key benefits included:

- **Improvements in productivity.** Since beginning the rolling deployment, GE has onboarded several tens of thousands of employees with SilkRoad Onboarding. With the deployment of GE Hire, the employer has thus seen considerable boosts in productivity for HR staff responsible for onboarding – from scanning and printing documents, to preparing these for mailing and storage, review of returned hardcopy paperwork, communication back and forth with the onboarded employee to verify information, tracking of these employees through the onboarding process, and data entry.

Employees onboarded with GE Hire have seen their productivity improve, as well, on the first day in a new role.

- **Eliminated costs.** In deploying SilkRoad Onboarding, GE did away with a fee for separate software that handled workflow around processing E-Verify and Forms I-9, necessary for U.S. new hires. As SilkRoad Onboarding has deployed, GE eliminated additional expenses that were unavoidable with the outgoing system. Printing and mailing costs associated with documents for new hires have gone away, for instance. So have storage-related costs for some of those documents and other new hire-related forms required for compliance. In addition, the company got rid of costs associated with internal websites previously needed for carrying out onboarding.
- **Consistency with employer branding.** GE's ability to deploy the new onboarding solution across multiple languages and global regulatory environments presents a consistent look and feel for the system. This did not factor into the calculation of ROI, but has nonetheless underpinned the company's employer branding.

BEST PRACTICES

An on-premises HRIS that GE had in place prior to choosing SilkRoad remains. Throughout the organization, this HRIS touches all activity related to human capital management. The employer worked with SilkRoad to develop a replicable process and set of best-practices to integrate GE Hire with this HRIS everywhere onboarding is needed at GE—an elaborate effort to help ensure standard workflow and a consistent look globally. The preparation equipped a core team to lead implementations from headquarters in waves of five countries on average, every time. Beginning in January of 2015, this core team continually led five waves concurrently, each time working in cooperation with whatever local team the destination country assigned.

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SmartRecruiters

SmartRecruiters is a cloud-based and SaaS-delivered talent acquisition technology that includes recruiting software, solutions for recruitment marketing, a platform for collaborative hiring, and dashboards that help users manage their hiring campaigns.

Our analysis of users' experience indicates that they find the centralization of functionality, whether that be to send emails to job candidates or a job requisition to multiple job boards, to be a positive. Some have encountered difficulty in attempting to integrate SmartRecruiters with other vendors' solutions. Others point to the usefulness of the internal system for rating job candidates.

SumTotal Systems

Three years ago, Skillsoft acquired SumTotal Systems. The two have mutually elected to operate as separate business units even as they merge functionality. Over the past year, they have succeeded in combining talent management and WFM with learning technology and content—specifically, bringing WFM, talent management, learning, and recruiting onto one platform. Expanded reporting and analytics, as well as career and individual development capabilities, are part of the Core Platform.

SumTotal has recently launched native functionality for the pre-hire elements of talent acquisition, having the effect of relieving SumTotal of the necessity for a cloud-to-cloud integration with iCIMS. For learning, the system accommodates the aggregation of content from third parties and massive open online courses. SumTotal's Experience API, enables customer tracking, reporting, and analytics for learning experiences that occur outside of the LMS.

Skillsoft has also recently launched Percipio, a new cloud-based content delivery and learning platform. A personalized homepage enables employees to track their goals, access learning content, and follow paths of learning tailored to their career and other goals. Percipio provides recommendations on content that match a learner's interests based on this self-assessment. Meanwhile, Skillsoft's advanced search engine brings in elastic search to crawl potential matches' entire text to produce results better tailored to the

query.

The most current version of SumTotal is available to any user whether the customer receives the solution via SaaS, has a privately hosted instance, or has the system installed on-premises. This flexibility is advantageous for a distributed enterprise whose business units, countries, or subsidiaries by some necessity have different deployments, but all need to work off the same instance of the software.

Talentsoft

Talentsoft is a cloud-based, SaaS-delivered solution for recruitment, career planning, compensation management, competencies and performance management, and e-learning. The vendor competes mainly in Europe. The vendor has acquired e-learning provider e-doceo. Since, Talentsoft has entirely assimilated e-doceo's functionality into its product-naming nomenclature and gained greater ability to compete in an end-to-end sense with its biggest rivals, Oracle, SAP SuccessFactors, Cornerstone OnDemand, and, increasingly, Workday.

A new customer of note is the French National Mail Service, whose implementation recently began. Talentsoft recently beat SAP SuccessFactors to win the business of Toyota Material Handling, headquartered in Sweden and with operations in more than 20 European countries. The vendor claims, surprisingly, that it has not faced Lumesse in a deal in a very long time. Implementations of Talentsoft tend to be quicker than those of its competitors. Part of this is attributable to the launch early this year of Talent Hub, the vendor's customizable solution for HR data management.



CHAPTER 6

ENTERPRISE RESOURCE PLANNING

The enterprise resource planning (ERP) market continues to shift as cloud technology matures and vendors strive to deliver more industry-specific capabilities in their core products. Although some customers still do not see sufficient value in the cloud, vendors are seeing cloud adoption accelerate, with more companies moving critical business processes to the cloud, rather than just “edge” applications. To improve their value proposition, leading vendors are making their cloud offerings more accessible and giving customers the flexibility to which they are accustomed from their on-premises legacy systems.

ERP is a critical part of how a company collects and manages information about many separate parts of the enterprise, including finance, marketing, sales, planning, purchasing, inventory, and human capital. Frequently functioning as a central system of record, ERP software integrates data from disparate silos, ensuring users have the information they need to do their jobs at their fingertips. Vendors of modern ERP systems are delivering solutions that help organizations transform their operations from manual, labor-intensive processes to digital and automated tasks.

We evaluated ERP market vendors based on their product usability, functionality, and the value that customers realize from the capabilities of the product.

Verticalization is a predominant theme among vendors today. As vendors continue their push to the cloud, delivering more capabilities that are tailored to specific industry needs has become the driver of many R&D dollars.

Many vendors with a considerable number of customers on legacy systems have struggled to get their cloud business arms off the ground. They are focused on delivering the functional depth in the cloud that their customers are accustomed to in their highly customizable on-premises environments while ensuring their cloud solutions can deliver a positive ROI to as many of their customers as possible. Meanwhile, cloud-native vendors are looking to diversify from the one-size-fits-all model, delivering more industry-specific capabilities out of the box.

Giving customers choice remains paramount, owing to the fact that a single jump to the cloud for many enterprises is unrealistic. For many vendors moving customers off legacy systems, flexible and hybrid deployment options are table stakes at this point. Vendors are responding to the concerns of some customers, particularly those in manufacturing sectors, of potential downtime and lost production if connectivity fails.

With some vendors able to claim customers who have been on cloud deployments for nearly a decade, the value proposition for cloud ERP has had sufficient time to develop. Vendors are innovating to extend the value they deliver and ensure that their customers have the latest business technologies such as Big Data, IoT, machine learning, AI, and advanced analytics. While many vendors are in the initial stages of operationalizing these technologies, the early returns from customers demonstrate that at least some use cases live up to the marketing hype.



Enterprise Resource Planning Value Matrix

Dot indicates current position. Arrow indicates trend in 2018 relative to others in the market.

Acumatica

Acumatica, with a heavy focus on usability and platform flexibility, excels in several industries including manufacturing, wholesale distribution, retail, food and beverage, non-profits, and services. Acumatica's strength comes from the ability of its platform to address the needs of almost any customer. From a functional perspective, Acumatica has been working on some manufacturing micro-verticals such as cardboard and beauty supplies. The vendor is also focusing on improvements to its project module, such as delivering project accounting in the project management system. Lastly, Acumatica has

also been investing in multi-company capabilities to help customers navigate a variety of accounting procedures.

As one of the fastest-growing cloud ERP companies, Acumatica is taking steps to ensure that its partner ecosystem maintains the quality level customers have come to expect, especially as some larger partners come on board. Field service management has also been an area of growth, delivering capabilities like delivery routing and virtual and mobile warehouses. With a new user interface set to be release soon, Acumatica seeks to make its product more user-friendly with pre-built dashboards, yet with the flexibility to be tailored for each user. Customers that already take advantage of the platform flexibility should be able to continue to improve their workflows with the new UI, realizing additional value in the process.

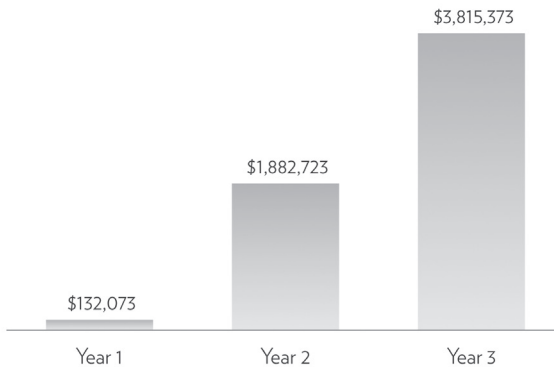


ROI case study: Acumatica

ErgoResearch • ROI: 389%

ErgoResearch deployed Acumatica to replace multiple accounting systems and processes and establish a foundation for rapid growth. Nucleus found the project enabled the company to reduce technology costs, standardize processes and reporting, and increase staff productivity while increasing revenues.

CUMULATIVE NET BENEFIT



THE COMPANY

ErgoResearch LTD is Canada's leading manufacturer of intelligent custom-fit foot orthotics and other biomechanical devices. The company holds a number of patents for orthotics, prosthetics, neurostimulation, and human bionics. Headquartered in Quebec, the company is publicly traded on the Toronto Venture Stock Exchange, and was recently ranked as Canada's 129th fastest growing company.

KEY BENEFIT AREAS

Standardizing on Acumatica for all of its businesses has enabled ErgoResearch to streamline its operations and ensure that all users have access to the same data and functionality across the business regardless of their location. Key benefits of the project include:

- **Improved compliance.** Acumatica enables executives to more rapidly review financials between outlets and divisions, and consolidation in one system has accelerated and increased control of quarterly and annual financial statements.
- **Increased accounting and general employee productivity.** One single accounting system has enabled ErgoResearch to shrink its accounting staff by more than 20 percent. Greater visibility across all departments and the ability to access the application remotely has increased productivity for staff who spend much of their time out of the office.
- **Improved technology management.** ErgoResearch was able to eliminate the license maintenance fees and cost of staff time that was previously spent supporting the legacy accounting and other applications it replaced with Acumatica.
- **Increased revenues.** Greater visibility into patient records, linked with the accounting and calendaring system, has enabled the company to have a more efficient recall and replacement process for patients, driving additional revenues from replacement orthotics.

BEST PRACTICES

Because Acumatica is built on Microsoft .NET technology, ErgoResearch's internal IT team was able to rapidly master application development without any additional training and now has the flexibility to build new modules or adapt the solution without additional consulting. This gives ErgoResearch the flexibility it needs to address changes in its rapidly growing business.

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Aptean

Aptean can manage operations from supplier and planning to manufacturing, distribution, and logistics. Aptean focuses on several industry verticals, including food and beverage, healthcare, automotive, retail and general consumer packaged goods, and industrial manufacturing. With an emphasis on integrated solutions between SCM, manufacturing execution, and distribution, Aptean customers are buying in a phased approach, leveraging the flexibility they have to tailor the system to their needs.

In terms of innovation, Aptean is focused on delivering drones, IoT deployments, and AI capabilities, as well as integrating its solutions for customers that are deploying multiple products. Aptean also consults with its customers on what capabilities customers have developed that should be brought into the core product as industry best practices. As a result, customers are incentivized to keep their ERP systems current, as they can eliminate customizations that are now delivered as part of the main product. Aptean focuses on delivering value from the start of its engagement with customers, carrying out ROI analyses of performance and run-rates for manufacturing and execution, as well as consultations on continual improvement as part of maintenance.

Deltek

Deltek delivers value to project-centric businesses, including government contractors; architecture, engineering, and construction (AEC); law firms; marketing agencies; aerospace and defense; management and IT consulting; healthcare; and non-profit. With its solutions delivered via private or public

cloud or on-premises, Deltek goes to market looking to support its customers at every step of the project lifecycle from proposal to completion.

Deltek has been investing in easing the transition to cloud and extending the value of its solutions. Deltek developed cloud conversion programs that help customers move to the cloud from on-premises legacy deployments. Deltek's cloud operations team is a value driver for customers, ensuring that the product runs smoothly, and any issues are quickly resolved. Recently, Deltek announced the launch of Deltek Partner Marketplace which expands on the investments it has made to its Product Partner program. The Product Partner program had helped connect customers with third-parties that offered extensions to Deltek, which help customers realize additional value from their deployments. Now through the Partner Marketplace, partners can market their products directly to customers and prospects.

Last year Nucleus suggested that the fruition of investments in user experience (UX) and a consolidated cloud offering would be the next steps for Deltek to further its value proposition. With over 7,000 customers in the cloud, Deltek is aggressively moving toward that goal, unifying industry-vertical best practices in its cloud solutions.

Epicor

Epicor released a new version of its ERP system, Epicor ERP, specializing in manufacturing micro-verticals aerospace and defense, electronics, fabricated metals, industrial machining, medical devices, and rubber and plastics, to name only a few. The new release also features fully integrated enterprise content management (ECM) capabilities from the acquisition of DocStar.

The latest version of Epicor ERP is being offered in a dedicated cloud tenancy deployment, which provides each client with its own database. This is in addition to the multi-tenancy and single-tenancy deployment options already offered. There is expanded international financial applications and electronic compliance engine, as well as enhanced data analytics. Enhancements were made to its configure-to-order design function as well as its automated shipping software streamline processes. Epicor is investing in ensuring its solutions are ready for Industry 4.0 and able to leverage IoT, Big Data, and analytics. With a focus on mid-sized manufacturing, Epicor is looking to futureproof its solutions, so it can help its customers innovate and grow.

In addition to a new UI, Epicor has its Field Service Automation solution on the roadmap. The combination of mobility and extensibility should help

customers operating in the field integrate the applications they need, as well as leverage the new Epicor Mobile CRM, which has been taken from ecosystem add-on to full-fledged product. With an update cadence of every six months, Epicor is encouraging its customers to stay current, offering a single, consistent support system as well as flexible upgrade windows.

FinancialForce

FinancialForce focuses on professional services automation (PSA) and core financials. In many instances, the vendor differentiates with its native integration on the Salesforce platform, helping companies streamline their workflows from opportunity to billing delivered in the cloud. FinancialForce made the strategic decision to cease development on some of its human capital management capabilities opting instead to partner with ADP to support its customers' needs starting with payroll with plans to expand the partnership in the future. The move indicates that FinancialForce is refocusing on its core, striving to be the best cloud-based PSA and financials vendor on the market.

FinancialForce seeks to fulfill three requirements of modern ERP that its customers demand: business model agility, time and talent optimization, and predictive insights. For companies that are shifting to a more service-oriented business away from solely traditional product sales, FinancialForce helps them tie together revenue streams with different recognition requirements. Additionally, the mobile functionality and project visibility delivered by FinancialForce help organizations efficiently allocate remote employees juggling multiple projects. Lastly, FinancialForce being natively integrated with the Salesforce platform helps customers leverage the latest capabilities delivered on the platform, such as business intelligence with Einstein Analytics.

FinancialForce has exhibited some of the bumps in the road to be expected of a growing vendor as it matures. The reallocation of investment dollars in its core capabilities bodes well for its customers, who continue to realize positive value from FinancialForce. Although customers often cite the native integration as a primary differentiator for FinancialForce, ensuring that its PSA and core financials continue to be competitive should help the vendor capture more customers that aren't current or prospective Salesforce customers.

IFS

IFS delivers manufacturing and project-centric ERP products along with enterprise asset management (EAM), and field service management (FSM). Available in the cloud or on-premises, IFS has industry-specific software solutions available via SaaS or perpetual license covering aviation, automotive, engineering, construction, and infrastructure, energy and utilities, industrial, process and high-tech manufacturing, oil and gas, asset-intensive, and service providers.

IFS continues its aggressive acquisition activities. In 2017, IFS purchased of Mxi Technologies Ltd early, as well as two UK-based firms, mplsystems Limited and Field Service Management Limited. Mxi adds to IFS's aviation vertical delivering best-of-breed maintenance management to third-party maintenance, repair, and overhaul companies, as well as defense and commercial organizations. Mplsystems and Field Service Management extend IFS's Service Management capabilities, with Field Service Management an existing implementation partner for IFS and mplsystems an expert in deploying omnichannel contact management platform.

The IFS Connector helps companies more easily connect devices and start to analyze data, leading to improved service levels and value for the customer. Enhancements to the user experience and support for mobile functionality help deliver a better experience to technicians in the field. To improve usability of the product, IFS is delivering intelligent task automation as well as quarterly software updates, removing the need to implement service packs. The more consistent cadence of product releases helps companies plan their upgrades and ensure they are taking advantage of the latest product capabilities. With a global presence, IFS can support tier-one enterprises in any market, seeking to become customers' trusted advisers.

Infor

Infor's vertically-focused CloudSuite offerings deliver value to customers. Although still offering on-premises versions of its ERP products, Infor has a cloud-first strategy across both its enterprise and midmarket offerings. Infor's ERP solutions cater to enterprise industry verticals for aerospace and defense, automotive, industrial machinery, food and beverage, fashion, distributed enterprise, equipment rental, corporate management, and healthcare, with midmarket verticals for industrial, process manufacturing, distribution, and

business services.

Infor is tackling the challenge of migrating many of its 90,000 customers from legacy systems to Infor CloudSuites, which have at their core the latest cloud-enabled Infor LN, M3, Lawson, and SyteLine solutions. For each solution, Infor has made CloudSuites available to address industry verticals, and those suites are delivered on the Infor OS platform which includes extensibility capabilities via ION middleware.

Infor has continued to make investments and acquisitions to expand its solution footprint, including the purchase of GT Nexus in 2016 to expand its supply chain capabilities and more recently, the analytics vendor Birst. At its user conference, Infor announced Coleman, a product designed to leverage AI and machine learning that is embedded in Infor's OS Platform and helps deliver insights to users. With a large number of customers on a variety of legacy ERP systems, Infor must demonstrate superior value in its latest offerings or risk losing customers when they decide to upgrade. Infor's vertical focus should continue to pay dividends to its cloud customers moving forward.

IQMS

IQMS brings together Manufacturing Execution System (MES) software and ERP in a single system. Focused on manufacturing verticals such as plastics, stamping and metals, food and beverage, aerospace and defense, packaging, medical, automotive, and process-specific industries, IQMS has made strides to move upmarket, servicing the needs of global enterprise customers as well as small and medium businesses. IQMS gives customers a choice of how they want to deploy, be it as SaaS in a managed cloud environment, hosted licensed software, or on-premises perpetual license.

IQMS's WebIQ user interface helps users leverage HTML5 browser-based functionality. Though not yet optimized for small screens, IQMS continues to make investments increasing usability without sacrificing functionality. Offering a new support package designed to foster continuous improvement amongst its customers, IQMS looks to deliver additional value to existing customers with quarterly account reviews to determine where engineers can make improvements, as well as offering monthly virtual training sessions. IQMS is also committed to new customers achieving value by building business cases for prospects with the goal of a positive ROI within a year of deployment.

Kenandy

Kenandy is a cloud ERP solution built on the Salesforce platform, focusing its product on order-to-cash, manufacturing, supply chain, financials, and distribution. Being Salesforce Lightning-ready and flexible means that Kenandy provides solutions out of the box for most customers. It also means that customers familiar with Lightning will find that Kenandy possesses an intuitive interface that is user-friendly. Flexibility is added by mobile and collaboration tools that allow customers to respond to changing environments while also providing them with greater visibility. With Kenandy, manufacturing companies can manage inventory, warehouses, and orders, while increasing procurement automation, as well as improving automation for the financial reconciliation and close. Continued development of capabilities that leverage the analytic engine on the Salesforce platform should help customers achieve additional insights and value.

Microsoft

Microsoft has made advances toward achieving its vision of delivering its productivity and enterprise applications with Dynamics 365 for Finance and Operations Enterprise edition, delivered on an integrated business application platform on its cloud infrastructure. Microsoft recently announced a retail-focused module, Dynamics 365 for Retail, to go along with verticalized offerings in manufacturing, distribution, professional services, and the public sector. For Microsoft, the focus has been on delivering new capabilities to the cloud first, although it did release an on-premises deployment option in July 2017.

Dynamics 365 for Finance and Operations Business edition is Microsoft's SaaS solution, joining the Dynamics NAV and Dynamics GP on-premises offerings. Built on the NAV platform, Microsoft delivers NAV functionality in the Business edition which includes core financials, sales, purchasing, inventory management, and project management, with additional components on the roadmap. Designed to be easy to implement, Business edition is delivered on Azure infrastructure and can take advantage of the platform capabilities delivered in the enterprise version of the software.

The improvements Microsoft has made to both its enterprise and SMB ERP products deliver value to customers, leveraging cloud capabilities and integrated applications. Although the vendor has taken steps to not leave

behind parts of its partner community, the ecosystem continues to evolve as partners and independent software vendors (ISVs) switch from custom projects and continued maintenance to onboarding and adoption assistance as well as application and extension building. As the partner ecosystem matures to catch up with Microsoft's cloud application strategy, customers stand to benefit and realize greater value overall.

NetSuite

Since its acquisition by Oracle, NetSuite has focused on expanding its reach across the globe, promoting its use of Oracle data centers to support existing customers as well as pursue new prospects in Europe and Asia.

NetSuite delivers two major updates each year with a host of functional improvements to its OneWorld ERP solution in financials, revenue recognition, billing, resource planning, supply chain, and risk and compliance. With each update, all of NetSuite's customers are automatically moved to the latest release, enabling customers to take advantage of new capabilities. Consistent with its global expansion strategy, NetSuite is focusing on helping global companies automate and simplify financials in multi-company and multi-country situations. NetSuite is also delivering revenue management capabilities that help customers stay compliant with the ASC 606 revenue standard. NetSuite's investment in new capabilities is bolstered by Oracle's financial backing, ensuring a steady stream of functional improvements in the future. Of note are the investments that NetSuite is making in delivering the next generation of analytics and reporting capabilities to its product lineup.

Oracle

Oracle continues to focus squarely on its ERP Cloud product suite and SaaS offerings. Seeking to address the needs of nearly every business, Oracle's solutions consist of financials, project portfolio management, procurement, enterprise performance management, supply chain, and risk management. In the latest releases, Oracle has continued to enhance the user experience, improve and streamline business processes, provide better insights and reporting, and make integrating and extending the solution easier. Oracle also added industry capabilities to verticals such as financial services, higher education, and manufacturing.

Oracle seeks to be the end-to-end cloud solution for enterprise customers,

offering human capital management, customer relationship management, and supply chain management to complement its ERP suite. With a modern UI, customers can tailor the solution to deliver the information based on user or role with context sensitive graphics that can be drilled into to gain access to the underlying data. The UI also facilitates mobile functionality and real-time analytics that provide insights on key performance indicators (KPIs) that help decision makers. Oracle also provides customers with the full technology stack, with PaaS and infrastructure as a service (IaaS) products that extend its value proposition.

Although the focus for Oracle has been on its enterprise SaaS, Oracle still offers legacy solutions such as JD Edwards, E-Business Suite, and PeopleSoft. Oracle has continued to invest in these solutions to deliver the latest modern capabilities to the cloud and ensure that customers are receiving value as they transition to the cloud leveraging Oracle's IaaS and database as a service (DBaaS). As Oracle's push to the cloud continues and its associated services mature, customers should expect Oracle's ability to quickly deliver value to improve.



ROI Case Study: Oracle ERP and HCM Cloud

Professional Services Company • ROI: 133%

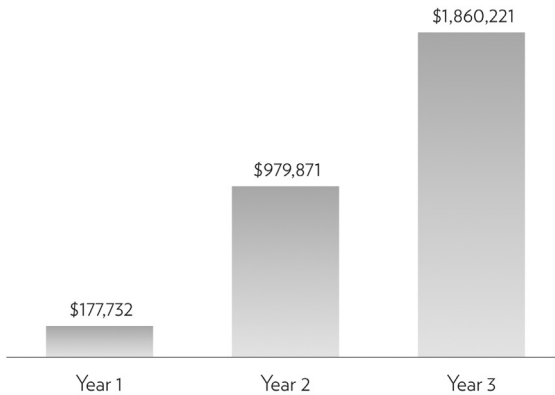
A company managing engineering and infrastructure projects deployed Oracle ERP and HCM Cloud to centralize and streamline company procurement, financials, inventory, projects, invoicing, and human resources. Nucleus found that deploying Oracle's cloud ERP and HCM solutions helped transform business operations, reducing administrative costs and increasing employee productivity. Oracle ERP and HCM Cloud tools automated tasks, allowing decision makers to devote more time to developing and implementing strategic actions.

THE COMPANY

The company is a subsidiary of a larger conglomerate and was contracted for a large infrastructure project in a major U.S. city. The infrastructure project is designed to support

the growing needs of the city and ensure quality service delivery to citizens. The company hired a small team of internal staff to manage the project and outsourced the building to many subcontractors in order to meet tight project deadlines.

CUMULATIVE NET BENEFIT



KEY BENEFIT AREAS

Deploying Oracle ERP and HCM Cloud solutions enabled the company to operate more efficiently and gain greater visibility of its procurement process and human capital resources. Key benefits of the project include:

- **Increased procurement efficiency and strategy.** Instead of focusing on generating purchase orders as quickly as possible, managers can now be strategic in their procurement decisions due to the automated and streamlined procurement tool.
- **Increased administrative productivity.** Centralizing and digitizing human resources led to reduced errors, eliminated the need for paper trails, and allowed employees to focus on their jobs rather than addressing administrative tasks.
- **Simplified and more efficient reporting and compliance.** With integrated Oracle ERP Cloud and Oracle HCM Cloud, compliance and report generation are

baked into the solution and centralized, giving relevant users visibility and increasing their productivity.

- **More accurate and timely accounting and financial planning.** Using Oracle's accounting and business analytics tools, decision makers can quickly access and analyze real-time financial information, allowing more time for strategic planning.
- The deployment also produced other benefits such as reduced IT maintenance and troubleshooting and increased manager productivity through automated approvals.

BEST PRACTICES

The company has been able to leverage the integration of Oracle ERP Cloud and Oracle HCM Cloud due to the common platform on which all employees operate. The unified system is best exemplified by the procure-to-pay process. Decision makers have full visibility of the current inventories and upcoming needs based on project pipelines. Purchase order creation is simplified using embedded workflows and can be done from any project site with Oracle's mobile functionality. Order information is automatically fed into accounting and budgeting in real-time, ensuring accuracy and an up-to-date view of the operation. As a result, the company has better relationships with suppliers, better manages its inventories to avoid overbuying, and plans ahead rather than reacting on an ad hoc basis.

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Plex

Plex, Michigan-based ERP vendor has made a few notable announcements recently that are bringing value to customers, such as the availability of IntelliPlex Production Analytics Application, an addition to Plex's IntelliPlex Analytic Application Suite which uses industrial IoT to provide manufacturers with insight into their processes and equipment performance, providing

an overview of overall production operations. Specifically, the application provides information on important performance measures such as overall equipment effectiveness, scrap rates, first pass yield, inventory turns, on-time jobs, and machine availability.

Plex also has a new analytic application, the IntelliPlex Supply Chain Analytic Application, which produces a dashboard for strategic programs such as inventory and material management, customer success, and enterprise supplier performance. Depending on the category, customers will be able to track data by supplier, part, material, type, location, as well as things like average days to ship, on-time fill rate, customer lead time, and spend by supplier. This furthers Plex's work to make it easier for manufacturers to use and manage data in their businesses. Plex uses Microsoft Azure to ensure scalability and connectivity for its customers, while also allowing users to pull their data into Microsoft Office 365.

Plex plans to add predictive demand forecasting and machine learning to the Plex Supply Chain Planning Suite. Once operationalized, customers should expect to benefit from the innovative capabilities on Plex's roadmap.

QAD

QAD is focused on manufacturing and specializing on six industry verticals: automotive, life science, high tech, industrial, consumer products, and food and beverage. Relying primarily on direct sales and with no outsourced support, QAD delivers value to the midmarket by working closely with customers to ensure that the software grows with them. QAD has developed its own cloud management layer so it can work with customers to select the best-in-class cloud service providers based on the customer's geographic needs, benefitting global customers in particular.

Recently, QAD has focused its innovation on a few areas including continuing to update its UX, architectural foundation, and vertical capabilities. The UX, on which work began three years ago, incorporates HTML5 and is natively built for mobile devices to improve product usability. QAD also developed pre-configured solutions for each of the major industries it serves, helping customers deploy quickly and leverage industry best practices. Additionally, QAD developed platform extensibility that helps customer and partners build applications using open APIs. QAD has also worked to increase automation and enable its customers to implement IoT projects.

With some enhancements delivered on a continuous basis and a significant

update scheduled every six months, QAD will continue to make strategic investments, adding to the industry verticals in which it specializes, as well as delivering new analytics capabilities. QAD is dedicated to helping its customers adjust to changes in their industries, touching base each year to ensure it is delivering value. The innovations QAD has on the roadmap should improve the value it delivers to its customers.

Qualiac

Qualiac rates as one of the highest vendors in usability by customers because of its great degree of configurability, embedded analytics, and dashboards that can be easily customized and require limited IT intervention. Additionally, the high level of traceability of data at a granular level has made it popular in operations such as hospitals, where data audit trails are particularly of consequence. Qualiac has continued to increase its footprint both in North America and Europe with new customer deployments in North America and a joint venture in Spain.

Qualiac's biggest challenge is increasing its ability to attract customers and build momentum in the North American market, where its penetration has been historically limited. We expect the company will maintain strong usability although lack of industry-specific expertise may negatively impact its functionality rating against competitors.

Rootstock

Rootstock has made significant progress to become a one-stop-shop for its customers. Rootstock traditionally focused almost exclusively on manufacturers in high-tech, electronics, machinery, industrial equipment, engineered-to-order, and project-centric businesses. Recently, Rootstock added a financials module that supports multi-currency, multi-company organizations, rather than relying on partners, as it had done in the past.

Customers realize value from the best-of-breed approach that Rootstock brings to the Salesforce platform, on which it is natively integrated. Due to its manufacturing expertise, Rootstock finds almost half of its deployments independent of whether the prospect is on or considering Salesforce.

By adding core financials, Rootstock can deliver a more comprehensive solution for its manufacturing customers. Keeping pace with the latest developments on the Salesforce platform should ensure that Rootstock's customers

can continue to take advantage of new analytics and UX capabilities.

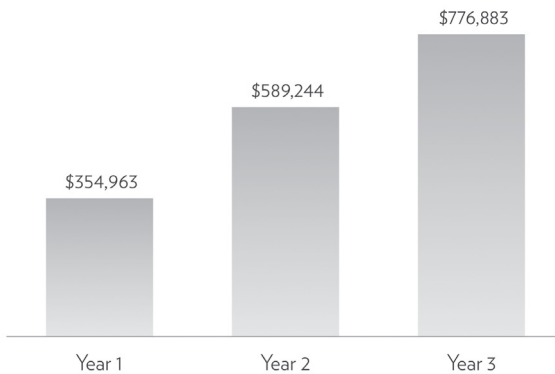


ROI Case Study: Rootstock Software

1st Light Energy • ROI: 256%

1st Light Energy deployed Rootstock to replace QuickBooks and better integrate with Salesforce. The company opted to put its enterprise resource planning and accounting software on the same platform as its customer relationship management solution and was able to go live in under three months. Nucleus found that the project enabled 1st Light Energy to shrink its inventory holdings, eliminate costly technology and data management, and transform how employees accomplish their tasks.

CUMULATIVE NET BENEFIT



THE COMPANY

1st Light Energy is an installer of custom-designed solar energy and conservation lighting systems for residential, commercial, and public-sector applications. 1st Light Energy is dedicated to providing alternative energy solutions that positively impact the environment and deliver financial returns to its customers. Offering solar panel solutions for both residential and commercial customers, 1st Light Energy handles every aspect of the solar selling

and installation process and does not outsource to contractors. Founded in 2005, the company has seven offices across the United States.

KEY BENEFIT AREAS

Moving off QuickBooks and onto Rootstock and FinancialForce for ERP and accounting has transformed 1st Light Energy's business and created a platform for exponential growth, with the company more than doubling in size since going live. Additional key benefits include:

- **Reduced inventory.** With greater visibility into current inventory levels and transparent procurement processes, 1st Light Energy was able to quickly reduce inventory holdings. The company reduced carried inventory by over 15 percent in the first year. The company was able to identify obsolete inventory and, despite growing substantially, cut inventory levels in the second year after going live.
- **Increased IT productivity.** With QuickBooks, information technology personnel were in a constant battle to keep the system up and running due to the strain 1st Light Energy put on the software. Because Rootstock is cloud-based, IT has no infrastructure maintenance. Additionally, IT now addresses technology issues using a service ticketing system rather than on an ad hoc basis.
- **Increased management productivity.** Prior to deploying Rootstock on the Salesforce platform, when management personnel needed to pull reports to monitor the status of sales and operations, they needed to go into separate systems and then reconcile the output. With Rootstock, managers can see all the information from initial order through production to project completion and pull the desired information in one report.
- **Increased employee productivity.** Using the old system, employees would spend time entering data manually into both the accounting and project management

software and CRM. With Rootstock, employees manage data entry by exception, simply filling in missing pieces and moving on to more value-added tasks.

Many of the jobs at 1st Light Energy look very different from what they did before deploying Rootstock. With total workflow visibility and the ability to track projects from conception through completion, employees no longer need to manually enter data or search for the right information to accomplish a task.

BEST PRACTICES

1st Light Energy adopted an aggressive implementation timeline and was successful in doing so. Leveraging internal expertise and Rootstock consultants, the company was able to go live in the shortest deployment for Rootstock to date. With its CRM, ERP, and core financials on the same platform, 1st Light Energy leverages the single data model. As a result, the company has been able to develop formal processes for costing and procurement, thereby reducing wasted inventory and more efficiently completing projects. Additionally, 1st Light Energy was able to leverage the open APIs of the software to reduce the complexity of training new employees and automate processes.

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Sage

Sage's ERP offering, called Sage X3, offers solutions for small, medium, and enterprise customers and is available as an on-premises, SaaS, or hosted deployment solution. Sage covers a wide range of industries, including construction, distribution, manufacturing, services, and process manufacturing. Sage X3 provides customers with solutions for purchasing and vendor management, warehouse and inventory management, sales, and marketing, as well as accounting.

It remains to be seen what Sage will do with the acquisition of Intacct, a financial reporting company, but the move shows significant intent by the

vendor to compete in new markets where it has not traditionally had expertise. Intacct competes with the likes of FinancialForce and NetSuite, and has 11,000 customers of its ERP software. As Sage integrates Intacct into its core product offering, customers should expect to benefit from the new capabilities and realize additional value.

SAP

SAP offers solutions with industry capabilities that help customers realize value. SAP gives customers a choice when deploying, offering the same source code, UI, and data model whether the solution is implemented on-premises, via private cloud on SAP's HANA Enterprise Cloud, or on a partner's cloud such as Microsoft Azure, AWS, and Google Cloud Platform. S/4HANA Cloud is SAP's SaaS ERP solution and shares the same data model as S/4HANA. S/4HANA is designed to function as the center of the enterprise in a variety of use cases such as managing core finance, enterprise management, professional service management, and manufacturing planning and execution.

SAP's recently announced Leonardo, designed to bring together and operationalize technologies such as Big Data, IoT, machine learning, AI, and advanced analytics. Positioned as a Digital Innovation System, Leonardo is designed to help enterprises take on new business models and better leverage the in-memory capabilities delivered with the S/4HANA platform. S/4HANA is critical to SAP Leonardo scenarios in machine learning and IoT, building a foundation that can unify transactional and analytical workloads in real-time.

SAP is working with its partners to address customer requirements, offering in-app extensibility via its cloud platform. Customers can find industry-specific tools and localization or develop their own customizations using Cloud Foundry. The Fiori UI allows customers to configure the system themselves and bring their own applications to the solution, regardless of language. SAP plans to release a development kit this year that will enable partners in the ecosystem to write their own applications. Looking to deliver 60 localizations this year covering 85 percent of the commercial world, SAP is focused on developing 100 percent of core ERP in the cloud and a degree of industry-specific functionality out of the box, relying on its partner ecosystem to deliver more depth on verticals.

SAP Business ByDesign is its midmarket cloud offering, delivering value

with its extensibility and ability to match customer needs. Business ByDesign delivers an out-of-the-box app with pre-integrated capabilities beyond the general ledger. Able to scale significantly, customers do not risk outgrowing ByDesign with multinational subsidiaries using at a maximum only 50 percent of the capabilities included in the product.

Customers rely on SAP to ensure that applications and extensions are not damaged during upgrades. The vendor relies on its partner ecosystem to customize the solution to the customer's needs, providing an app center for partners to market their specific industry expertise.

[SYSPRO](#)

SYSPRO specializes in automotive, food and beverage, industrial machinery, metal fabrication, electronics, packaging, plastics and rubber, and medical devices. Built from the ground up, SYSPRO has a single-source code that allows integrations based on its Service Oriented Architecture (SOA), making it extensible to fit a customer's use case. Additionally, the vendor has made strides in the last year to gain more traction in its cloud business, delivering its products hosted, on-premises, and in the cloud.

SYSPRO has continued to invest in its mobile solution called Espresso, giving users access to the ERP system on any device or operating system. Espresso uses the .NET framework, giving customers the ability to design and build their own applications as well as draw from third-party elements. SYSPRO's investment has also been focused on a new UI, featuring SYSPRO Chat Bot AI which is designed to assist users with a host of ERP tasks such as price queries, order status inquiries, and stock lookups. The chatbot can be accessed from any messaging application such as Skype or Facebook Messenger. SYSPRO is leveraging Microsoft's Azure Machine Learning Studio to support the AI framework and cognitive services for its chatbot.

To make implementations easier for customers SYSPRO has developed a five-step process: initiate, design, engineer, actualize, and leverage. At each step, SYSPRO outlines industry best-practices to ensure that the implementation goes smoothly. With the full suite of innovative technologies such as AI bots, IoT, and mobile functionality, SYSPRO competes with any vendor on delivering disruptive capabilities in the midmarket.

Unit4

Unit4 focuses on people-centric businesses such as professional services, higher education, public services, and non-profits. Unit4 has concentrated on improving the automation of its solution with more self-driving software.

Unit4 is continuing to invest in capabilities, such as its digital assistant, Wanda, which helps eliminate non-value-adding tasks. Wanda can assist with purchasing, time keeping, travel expenses, human resources, and approvals. With natural language processing and operating on the Microsoft Azure platform, Unit4 is looking to ease customers' administrative burden. To that end, Unit4 also released a new module called Project 360 Workspace along with dashboards designed for professional service organizations, focused on project management through better control and monitoring of an organization's operations. Additionally, Unit4 has invested in capabilities to help asset lifespan with field service mobility and service planning features.

Having built many of its capabilities from the ground up, Unit4 is positioned to continue innovating and delivering value to its customers around the world after reengineering its platform and investing in capabilities that target productivity. As it continues to push for greater automation and time-saving functionality, we expect its ability to deliver value to improve.

VAI

VAI (Vormittag Associates, Inc.) provides software solutions to midmarket customers. Its flagship ERP product, S2K Enterprise, covers customer needs in manufacturing, distribution, financials, and retail and service, and can be deployed on-premises or in the cloud. S2K Enterprise covers customers in several industries including automotive, electronics, plastics, medical products, industrial equipment, building and electrical supply, and apparel, with two industry-specific solutions for food and pharmaceutical customers.

S2K Enterprise 6.0 delivers a browser-based interface and HTML5 client that works on any device. VAI also supplies a library with over 100 pre-built portlets based on user-specific visuals. Customers can also develop their own portlet to service their specific industry needs. The new release helps improve usability as well as delivering an analytics application that leverage IBM Cognos. On the product roadmap, VAI is starting to work with IBM Watson to provide additional analytics capabilities. VAI gives all new customers a test drive of the cloud for the first six months to a year, encouraging customers who

might otherwise opt for on-premises deployments to adopt cloud. Additional investment in innovative capabilities like AI and IoT should help VAI keep pace with the market in future iterations of the Value Matrix.

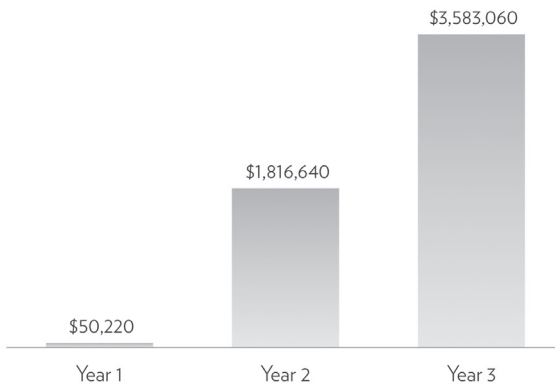


ROI Case Study: VAI S2K Enterprise

Imperial Bag & Paper • ROI: 100%

Imperial Bag & Paper deployed VAI S2K Enterprise in order to accommodate the fusion of multiple acquisitions under one ERP package. Imperial Bag & Paper leveraged VAI's unlimited user licensing to add hundreds of new users obtained during recent acquisitions. Nucleus found that S2K ERP enabled the company to migrate multiple software applications into one integrated ERP solution, providing a view of the entire business and providing real-time visibility throughout the organization.

CUMULATIVE NET BENEFIT



THE COMPANY

Imperial Bag & Paper Co., LLC is a large independent distributor of food service disposables and janitorial supplies headquartered in Jersey City, New Jersey. Originally founded in 1935, Imperial Bag & Paper was purchased by CEO Robert Tillis in 2007. Since its purchase, Imperial

Bag & Paper has made a series of acquisitions including Borda Products, Center Moriches Paper, Burke Supply, Wasserman Bag, and Goldman Paper Company. These acquisitions have helped Imperial Bag & Paper become a fast-growing leader in its market. To accommodate its continued growth, Imperial Bag & Paper has three distribution centers along the eastern seaboard in North Carolina, Massachusetts, and New Jersey. In June 2012, Imperial Bag & Paper Co., LLC was named to *Crain's* New York "Fast 50".

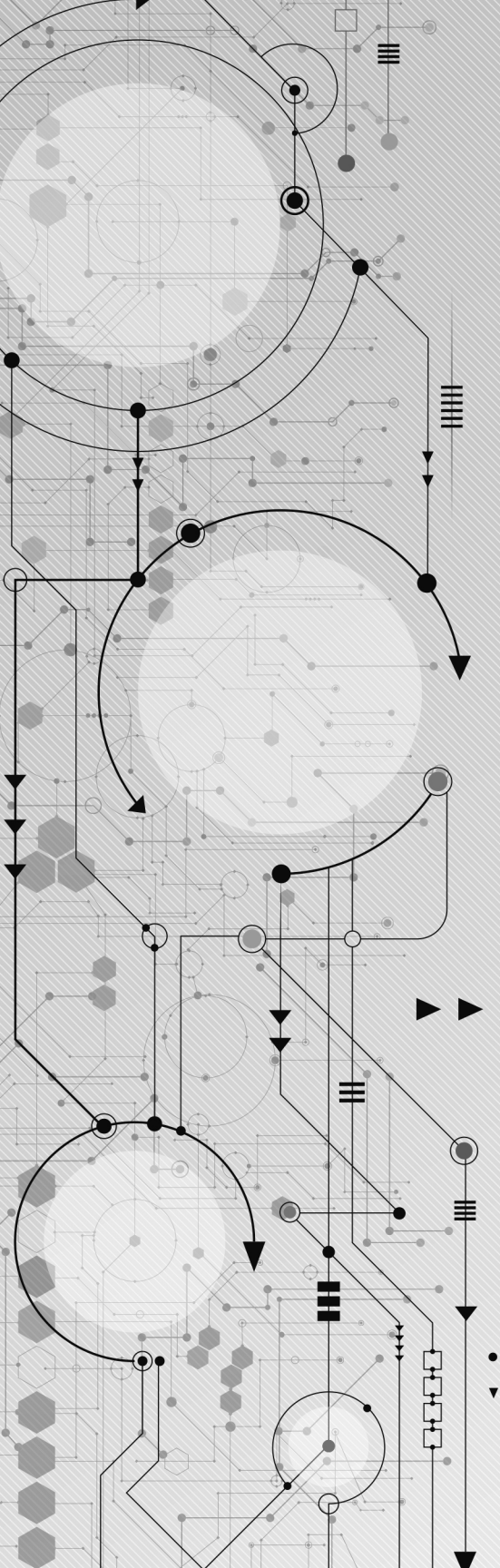
KEY BENEFIT AREAS

Deploying S2K ERP has enabled Imperial to achieve a number of benefits including:

- Integration in real-time of all applications.
- Consolidated staff from multiple sites reducing overlap and personnel costs.
- Improved delivery times and efficiency.
- Reduced transportation expenses, warehouse carry costs, and the frequency of inventory transfers.
- Increased efficiency in accounting, requiring fewer personnel to manage Imperial's accounts.
- Increased flexibility, increased visibility, and support for continued growth.

BEST PRACTICES

The deployment of VAI S2K Enterprise has enabled Imperial to consolidate several systems onto a single, real-time platform. The flexibility and adaptability of S2K ERP has provided the base necessary for continued organic and acquisition-based growth of the company. Predeployment and ongoing professional consulting has ensured Imperial employees are effectively trained and make efficient use of the enterprise planning platform. This enables Imperial to better serve its clients while making the process more efficient and timely.



CHAPTER 7

CONTROL TOWER

Supply chain control towers continue to evolve from tools that deliver visibility almost exclusively to solutions that provide capabilities like collaboration with trading partners and functionality that enables supply chain planners to automate processes and controls. While visibility is still valuable, especially when solutions integrate data from multiple disparate systems to provide the highly sought-after single version of the truth, the day-to-day management of the supply chain offers room for improvement. Leading vendors allow users to set parameters to elements of their supply chains, such as inventory levels and replenishment plans, and then leave the tool to make adjustments when issues arise. Additionally, vendors are providing capabilities that help enterprises work with multiple tiers of trading partners, manufacturers, transportation and logistics providers, and customers to better coordinate their operations.

The evolution of control towers has gone through multiple phases with an additional phase on the horizon. Visibility, actionability, collaboration, and automation have been the progression control towers have taken as vendors have matured their capabilities and extended the value they deliver. With their foundation in providing visibility across multiple areas of the enterprise that were traditionally siloed, control towers moved to phase two by extending levers to users, allowing them to make changes to correct for issues that were previously invisible to supply chain managers.

Once real-time visibility and the ability to take corrective action were established, the third phase of control towers began to arise due to so much

of an enterprise's supply chain data residing outside its four walls. Solutions now deliver collaboration tools that help supply chain managers coordinate with multiple tiers of trading partners, suppliers, and third-party logistics providers, giving the enterprise the ability to affect what was traditionally outside its control both upstream and downstream.

Lastly, to bring additional efficiency to the day-to-day management of the supply chain, vendors are bringing tools to market that automate many of the corrective actions that would otherwise require human intervention. For example, a customer can set the rules for replenishment that can be automatically triggered when inventory drops below a defined threshold, generating purchase orders and logistics to avoid stock-outs. By reducing the level of human intervention required, vendors are allowing supply chain managers to divert their attention to more value-added tasks rather than daily maintenance of exceptions.

The latest phase of control towers builds on the automation tools by letting machine learning examine historical data of how the supply chain has operated to offer insights on where rules and thresholds can be reset. Machine learning can also be deployed to make suggestions to users—such as an alternative replenishment schedule—by calculating the relative impact on key performance indicators compared with the original supply plan.

Additionally, vendors are working on capabilities that provide prescriptive actions based on anticipated issues that could impact the supply chain before they transpire. For example, by drawing on third-party data streams, solutions will be able to automatically connect an upcoming weather system like a hurricane to how it will impact shipping lanes and goods in transit, giving users the opportunity to find alternative sourcing solutions or alert the customer to the possible order delay. The capabilities rely on in-memory computing power and integration of data beyond the myriad of siloed systems within an enterprise.

On the collaboration front, vendors are working on intercompany orchestration as the next generation of control tower collaboration. Rather than limited to multi-enterprise data sharing, an orchestration solution would give the enterprise execution control of its value chain from end to end. With the ability to execute across multiple tiers of trading partners, enterprises will be able to better manage inventory, orders, shipment plans, and forecasts.

Though still underdeveloped in some respects, it is clear from vendor roadmaps that this level of coordination and automation is not far away and would represent the next step for control tower solutions overall. Customers

have just started to leverage the wealth of data within their supply chains that could provide insights on how to operate more efficiently. The relative accessibility of this data and its ability to be integrated as a barrier continues to fall with more companies opting for cloud deployments and SaaS delivery models. As these trends usher in the next generation of control tower solutions, vendors will be able to differentiate more on the quality of their analytics and the value their machine learning or artificial intelligence delivers. The market leaders are already well on their way to doing that.



Control Tower Value Matrix

Dot indicates current position. Arrow indicates trend in 2018 relative to others in the market.

Amber Road

Functioning predominately as a global trade management solution, Amber Road's supply chain visibility functionality includes data quality management, performance management reporting, integrated service provider network, and order and shipment visibility.

The integrated service provider network delivers value via pre-built connectivity with trading partners and suppliers. Members of the network are able to share information that is vital to maintaining service levels, as well as integrate information from other systems such as enterprise resource planning, warehousing, inventory planning, and transportation management, giving users a single version of the truth. Customers use the performance management reporting capabilities to maintain key metrics through personalized dashboards as well as to receive alerts of issues as they arise. Amber Road's solution helps companies with a global value chain by providing visibility functionality of importers and exporters, and it features a supplier portal that enables collaboration and information sharing.

E2open

E2open delivers a multi-enterprise platform that connects an enterprise with multiple tiers of suppliers, distributors, and customers to gain a comprehensive view of the value chain. With the release of its new user interface, dubbed Harmony, E2open now delivers a centralized user experience that functions as a de facto control tower. For the vendor, the idea of a separate control tower solution is unnecessary as its platform provides the visibility and control that users can leverage. Under the Harmony umbrella, all processes, data, and workflows are centralized in a closed loop, ensuring that any changes reflect down into the other systems.

Moving forward, all products will be delivered on Harmony, as E2open continues to work on integrating the acquisitions it has made over the past few years including Steelwedge for sales and operations planning, Terra Technology for demand sensing, and Orchestro for point-of-sale data collection. E2open most recently purchased Zyme, a channel data management provider, to connect consumer demand through n-tiers of the distribution channel and through n-tiers of supply, enabling enterprises to shape demand through the sell-side. With the best-of-breed point solutions consolidated with the new interface, E2open is building a suite that provides end-to-end

functionality with out-of-the-box configurability leading to faster implementations and delivering value to enterprise customers more quickly.

Elementum

Elementum delivers a cloud-based control tower allowing users to identify potential issues by providing key operational information. Elementum provides a real-time picture of a customer's supply chain by connecting suppliers, manufacturers, and logistics. The software runs on the same platform whether through a web browser or as a mobile application—delivering flexibility to users working remotely and facilitating a single version of the truth for global operations. The user experience is highly configurable and is similar to consumer applications in its presentation and visual appeal, leading users to realize value from the usability of the product. However, Elementum has not kept pace with the market in delivering functionality that helps users beyond basic visibility and alerts of potential issues. Investments in additional functionality like collaboration tools and automation capabilities should help customers realize more value from the solution.

Elemica

Elemica delivers its Supply Chain Operating Network focused on process industries. The solution provides users with a consolidated view of transaction data from trading partners and suppliers that is transformed into actionable insights. The solution, which is delivered via the cloud, brings together information from disparate systems without needing middleware, using business rules to translate and validate the data. Elemica's network extends visibility from shipments, orders, and payments down to the SKU level. With business intelligence from dashboards, alerts, and notifications, users can manage by exception, which is also available via a mobile interface.

Elemica recently released a new supply chain visibility solution called Elemica Pulse. The solution is designed to deliver real-time visibility that is predictive from order to delivery. Using proprietary algorithms, Elemica's new offering looks at historical data to ascertain insights that help users take strategic action. As more customers adopt the solution and begin to use its new functionality, Elemica's ability to deliver value should improve.

Infor

With the purchase of GT Nexus in 2015, Infor delivers a cloud-based platform that provides visibility of an enterprise's network of transportation, shipment status, inventory, and trade. The Network Supply Management solution brings visibility and collaboration across the entire supply chain. Focused on network orchestration, Infor GT Nexus looks to bring in external data from both upstream and downstream partners.

Real-time data flows from company locations and shipments in transit, allowing users to see as potential issues before they arise. The acquisitions of Predictix in 2016 and Birst in 2017 should help users analyze the data that the organization captures in their supply chain when they are integrated into GT Nexus. Although all the tools are present, Infor has not been active in expanding the reach of GT Nexus and increasing the capabilities that deliver value to customers.

JDA

JDA delivers its Agile Control Tower solution which provides end-to-end SKU visibility. The cloud-enabled product aggregates information across JDA's fulfillment footprint including demand forecasting, replenishment, order management, store operations, warehouse and labor, and transportation. Users have visibility of constraints in the supply chain, helping them develop better plans and orchestration. JDA is developing a new digital control tower as an evolution of its Agile product which will provide enterprise visibility, response management, and supply chain modeling.

Functioning as a digital hub, the new control tower solution will deliver dashboards connected to real-time data flows as well as tools to help users respond to events and run simulations. JDA's analytics capabilities will enable iterative improvement of outcomes with machine learning and prescriptive analytics. JDA has partnered with Google Cloud Platform, which brings services to customers like App Engine, Machine Learning, Datalab, BigQuery, and Dataflow. The platform enables IoT Big Data analytics as well as third-party data streams on weather, events, and news that could impact elements of the supply chain. While already a leader in the control tower market, JDA's investments in a next-generation control tower should increase the value it delivers to customers.

[Kinaxis](#)

Kinaxis delivers its RapidResponse solution, a cloud-based supply chain management software connecting data, processes, and people into a single environment to provide control tower visibility. The industry-agnostic solution has developed expertise in verticals such as life sciences, high tech, industrial, automotive, consumer packaged goods, and aerospace and defense. The vendor's solution integrates data from multiple systems to provide a consolidated view of the entire supply chain, allowing real-time modeling and collaboration with trading partners and logistics providers to plan for expected performance, monitor progress, and respond to issues. Available on mobile devices, RapidResponse helps users keep tabs on the supply chain while on the go, leading to reduced decision latency and improved operational and financial performance.

RapidResponse gives users the ability to address supply chain issues based on customer-configured key performance indicators. Collaboration capabilities are bolstered by contextual data and information, giving users an archived record of what decision was made and how it was agreed upon. Dashboards in RapidResponse provide users with the ability to drill into data to quickly determine where an issue lies and how they can address it. Lastly, Kinaxis will leverage machine learning and artificial intelligence to solve practical problems for its users by allowing the system to monitor performance and automatically take corrective action. A self-healing supply chain—where an algorithm improves performance based on trend analysis and historical outcomes—moves Kinaxis into the fourth stage of control towers, adding to the value that customers already realize. Targeting tier-one enterprises with highly sophisticated and complex value chains, Kinaxis helps customers gain better visibility and control of their supply chain operations.

[LLamasoft](#)

LLamasoft released its Enterprise Simulation Platform (ESP) solution earlier this year. ESP relies on three core capabilities: data integration, predictive analytics, and interactive visualization. It draws on a number of enterprise applications to eliminate the silos that traditionally plague organizations. LLamasoft's relational database in its Supply Chain Guru product helps users gain real-time information on inventory, shipments, demand, products, and locations, translating to better visibility and more accurate data.

ESP delivers additional value by using historical data to determine trends and behavior, recommending better decision options over time. The solution uses predictive analytics to identify potential issues such as stock-outs and service disruptions. Taken together, the solution provides users with a picture of the past, present, and future of the supply chain, ensuring that decision makers have the information they need to move forward strategically. As more customers adopt the ESP solution, the vendor is investing in additional functionality to deliver greater value to supply chain designers and planners.

One Network

One Network caters to companies at all stages of control tower maturity, from basic visibility and alerts to decision support and autonomous decision-making. One Network's control tower capabilities are underpinned by its Real Time Value Network (RTVN), which functions as a system of engagement for customers by delivering data from multiple enterprises on the state and context of products in the supply chain. While most customers derive value from the alerts and decision support capabilities of the software, some customers are implementing machine learning agents that are embedded in the execution layer of the solution, which allow them to automate corrective actions based on trend and outcome analysis.

Recently, One Network, which has two product updates per year, introduced its global logistics gateway solution that delivers a single access point for brokers, suppliers, orchestrators, distributors, and carriers. It also released a Maintenance, Repair, and Overhauls solution as well as a suite of cloud-based services. In the latest release of the solution, One Network focused on delivering industry-specific capabilities for restaurants and food service networks, as well as integrating inbound supply, logistics, and warehouse management in one solution. The solution can manage order collaboration, forecast collaboration, transportation management, and inventory and replenishment. Customers are able to reduce logistics costs with greater visibility and collaboration with upstream partners.

One Network's control tower capabilities help companies gain end-to-end visibility since all trading partners are on the same network. With multiple tiers of suppliers and customers operating on a single version of the truth in real time, users no longer experience data latency and can collaborate to resolve issues before they impact customer service. On the roadmap, One Network is working on expanding the reach of the control tower so it

functions as a hub for suppliers, manufacturers, logistics, and retailers, giving extended visibility into on-hand and projected inventory, order forecasts, orders, and shipments. The vendor is working to take the hub one step further to allow not just visibility of the supply chain but also manager control of suppliers and customers for hub-controlled items.

One Network can deliver significant value with its control tower solution due to the data sharing and collaboration that come standard in its multi-enterprise network. The autonomous operation capabilities that it delivers to customers is an additional source of value, allowing customers to focus on strategic objectives and other value-add tasks rather than addressing issues within the supply chain. The vendor should be considered by companies of nearly any size and complexity.

PearlChain

PearlChain's solution is designed to coordinate planning and execution. Covering a wide variety of functional areas such as supply chain management, sales and operations planning, manufacturing execution, warehouse management, contract management, purchasing, shop floor control, payroll, and order management, PearlChain has an open service-based architecture that enables it to integrate with legacy ERP systems.

Deployed in the cloud or on-premises, PearlChain focuses on specific industries such as automotive, food and process manufacturing, ship management, and construction, and it provides visibility over shipments with granular SKU data. PearlChain's Core solution provides visibility to the supply chain manager of what is possible. With features that cover dashboards, reporting, document management, IoT, security, workflows, and integration, the Core contains a single version of the truth and gives information on role-based KPIs based on what is relevant for the user.

Leveraging in-memory speed and scalability as well as open-source components that help users incorporate Internet of things data from equipment or critical components of the supply chain, PearlChain continues to innovate how it delivers value to its customers.

SAP

SAP's Supply Chain Control Tower solution is part of its Integrated Business Planning (IBP) solution suite, which includes IBP for demand, IBP

for inventory, and IBP for response and supply, all cloud-enabled on the SAP HANA Platform. A major area of focus for SAP's control tower is drawing on data from other systems beyond IBP, including third-party suppliers and customers. This gives users the tools to analyze the situation and act to rectify any issues. The control tower also takes advantage of SAP Ariba Supply Chain Collaboration platform to coordinate with forecasting, data sharing, and messaging capabilities. To help users resolve issues, SAP gives users scenario analysis capabilities as well as a case management system that captures contextual information about an issue as it is addressed.

Looking forward, SAP is using machine learning to help users in their decision making with recommendations of what course of action to take and showing what the relative impacts are to the planner. The machine learning algorithm gradually refines what actions to take when a problem occurs based on historical data of what worked and what did not. While control tower users are still looking for validation of recommendations, SAP is moving towards automation and stage four of the control tower evolution, where action can be taken autonomously without human intervention. As a result, customers can expect to achieve additional value from the solution as its automation capabilities come to fruition.

[ShipitSmarter](#)

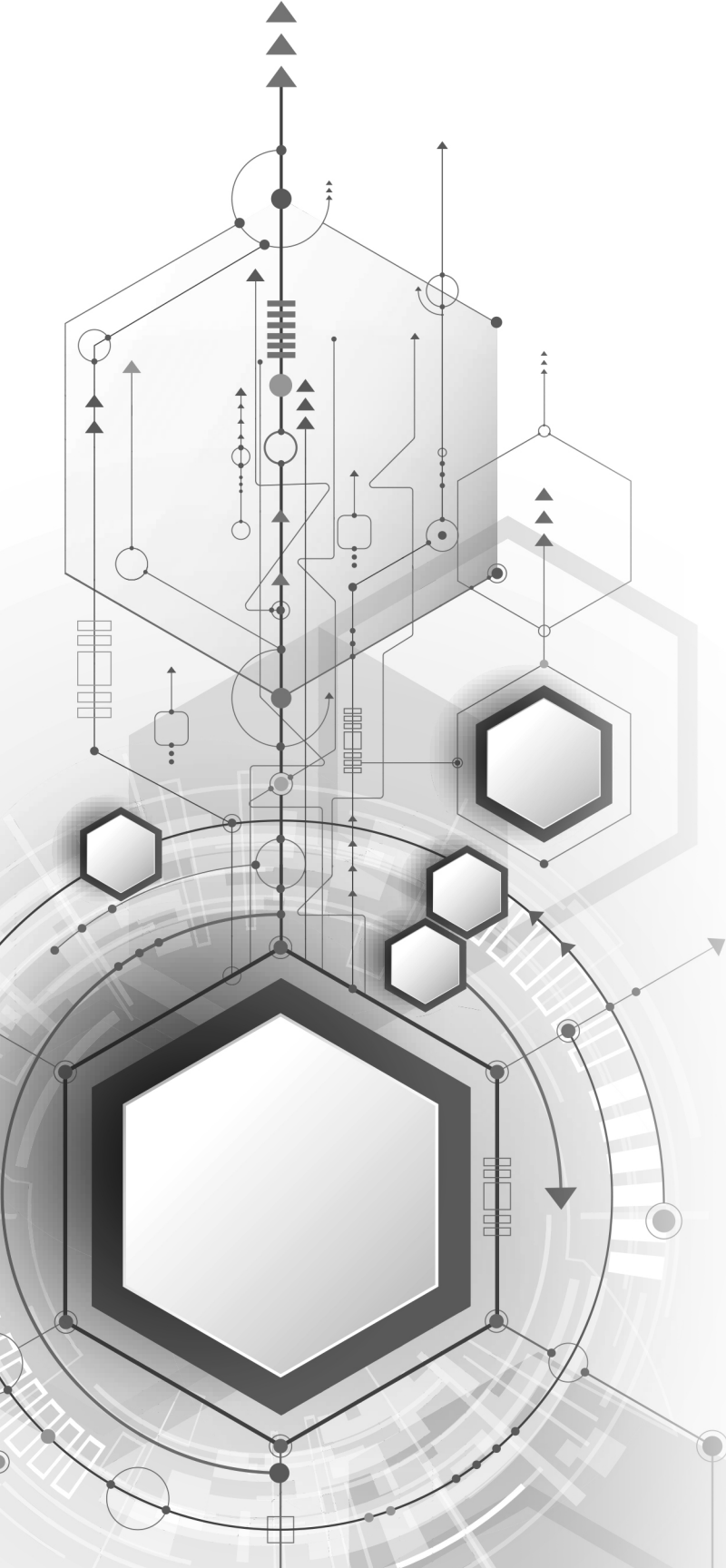
ShipitSmarter delivers a cloud-based SaaS solution. With the goal of optimizing inbound and outbound logistics, ShipitSmarter provides a control tower within the customer's organization that integrates shipment and carrier data. The solution also provides shipment management, trade management, data management, and reverse logistics.

ShipitSmarter delivers value to customers with its platform's analytics and dashboard capabilities such as spend management analytics, cost accrual reports, and invoice analysis. Additional functional benefits include mobile reports, which allow for the monitoring of shipment details while users are on the road. Visibility of KPIs such as carrier movements, loadings, and equipment utilization helps users stay informed and in control. With a narrow focus on logistics, ShipitSmarter fulfills a specific need of organizations with particularly complex supply chains and global shipping requirements.

Viewlocity

Delivered as a SaaS offering, Viewlocity Technologies helps customers across the three pillars it defines as critical to supply chain management: sense and respond, analyze and report, and execute and manage. Combining information from ERP systems, warehouse management, and transportation management, Viewlocity delivers a comprehensive picture of the supply chain based on the other systems within the organization.

Though the vendor partnered with FDC Solutions in 2015 in an effort to build a broader supply chain solution, little has transpired, with customers relying on the existing capabilities such as supply chain modeling and supplier performance monitoring. Users are able to define their own KPIs and metrics, with the solution delivering executive dashboards that provide high-level information. Without continued investment in automation and collaboration capabilities, Viewlocity risks continuing to fall behind other solutions in the market.



CHAPTER 8

INVENTORY OPTIMIZATION

Inventory optimization (IO) solutions are a key lever that enables companies to streamline operations while maintaining service levels and free up working capital. We found that leading vendors are delivering capabilities that help organizations determine the optimal safety stock to hold, at the lowest cost, with greater automation and more accurate forecasting. Customers receive value from solutions that deliver a continuous data model and provide users with tools to help them visualize and adopt recommended changes.

We analyzed solutions from vendors based on usability and functionality, with the leading solutions delivering value to customers with better visualizations, greater automation and machine learning capabilities, and more accurate forecasts. Many companies have recognized that IO tools are vital to manage inventory levels and maintain optimal service levels for their customers. At its core, inventory optimization reflects the ultimate goal of supply chain management: having the right amount of stock, at the right location, at the right time, and at the lowest cost.

IO solutions can optimize inventory levels resulting in additional working capital, and provide flexibility and reporting that gives a company the ability to decide which KPIs to constrain. IO Vendors are delivering solutions that can account for inventory held across multiple echelons (MEIO) and optimize on metrics such as safety stock, service level, budgetary constraints, profit margin, and holding capacity.

Though often inaccurately conflated, IO differs significantly from

inventory management, which is concerned primarily with control and movement of existing inventory. Management implies the efficient oversight of stock keeping units (SKUs) and production components, which means inventory management is disconnected with the levels and costs of the inventory being held. On the other hand, IO solutions are designed to link a company's level of inventory and where it is being held, to how well it can service customer needs, and what the financial cost is to the organization.

Though inventory optimization solutions have traditionally catered to large enterprises with extensive supply chains, the increasingly complex supply chains for mid-sized companies mean vendors are moving their IO capabilities down market. Additionally, as companies of every size are expected to deliver products through multiple channels, leading vendors have made MEIO a standard functional capability of their offerings. By improving ease of use and delivering solutions in the cloud, vendors are improving the value proposition of their products and can better service the needs of mid-sized companies.

For companies with new product launches or seasonal demand, vendors are developing and delivering machine learning capabilities that generate more accurate demand forecasts. Machine learning is also used to automatically adjust which optimization model a solution utilizes for a given SKU, based on historical performance and changes in demand patterns. As demand-driven supply chain becomes more standard, the power and quality of advanced machine learning capabilities will become a differentiator for companies that deploy them. The leading vendors are already leveraging machine learning techniques to account for variability in actual demand across the supply chain.

We found that many customers are getting value from their IO solutions when they deployed in conjunction with other supply chain capabilities, such as demand sensing, replenishment planning, and sales and operations planning (S&OP). However, there are other vendors who offer best-of-breed capabilities as standalone offerings and can deliver value in a marketplace which typically highlights end-to-end solutions. For vendors that deliver a more holistic solution set, those that utilize a continuous data model across all their supply chain components help customers achieve better value. With a single data model, users can immediately see the effect of a proposed change on every part of the supply chain and relevant KPIs.

In terms of usability, many vendors have realized that a plan is only as good as its ability to be implemented. As a result, vendors are focused on

helping customers with visualizing and communicating how the optimization engines are generating their recommendations. Stakeholder engagement and buy-in are crucial parts of solutions, as they help companies actualize a supply plan that might require significant organizational change. Removing the “black box” that surrounds the optimization engine and increasing the transparency of calculations, though often complex, helps users understand why a change is being recommended and chart a path of how to achieve the new optimum. Robust what-if scenario engines should be a part of any IO solution, allowing supply chain planners to run simulations to determine the effect of changes in inventory policies.



Inventory Optimization Value Matrix

Dot indicates current position. Arrow indicates trend in 2018 relative to others in the market.

4R Systems

4R Systems provides a cloud-based inventory solution for retailers. Its supply chain suite is characterized as a profit optimization solution and includes forecasting, replenishment, assortment optimization, seasonal allocation, and vendor order optimization. The solution is designed to maximize profit for each item and uses prescriptive analysis and machine learning in its forecasting solution, taking into consideration constraints such as seasonality, promotions, and pricing to develop a demand signal.

Within its replenishment solutions, 4R Systems provides omnichannel profit optimization to help retailers find the right balance of inventory. For customers with seasonal products, 4R Systems has solutions to manage buying, allocation, and markdown. 4R Systems also has capabilities that can optimize an assortment and send alerts when customers need to make adjustments. Like all 4R Systems' offerings, the engine selects an assortment designed to maximize profits.

4R Systems delivers a solution that is narrowly focused and is valuable for the right customer. For omnichannel retailers that are struggling to maintain profitability, 4R Systems provides the analytics and automation that help customers achieve value.

Blue Ridge

Blue Ridge offers a MEIO solution as part of its cloud-based supply chain planning suite. In addition to IO, Blue Ridge offers demand forecasting and planning, replenishment optimization, forecasting, supply planning, allocation, S&OP, and supply chain analytics. The MEIO uses a holistic view to analyze the entire supply chain network, calculating inventory levels based on demand sensing and supply chain configuration.

Blue Ridge's modeling considers supply chain constraints such as supplier capacity, buying maximums or minimums, and lead times. The MEIO tool accounts for drivers of demand and supply along the entire supply chain, helping retailers and distributors by allowing them to consider different demand types when modeling their forecasts.

With a focus on retail and distribution customers, Blue Ridge's solution isn't suited for every supply chain situation. However, the solution delivers significant value to its customers, offering a cloud solution with capabilities that make it competitive in its market verticals.

E2open

Since acquiring Terra Technology, E2open has been delivering Terra's cloud-based IO capabilities as part of its multi-enterprise network solutions, describing the application as multi-enterprise inventory optimization (MIO) rather than MEIO.

The application allows companies to optimize inventory across multiple tiers of their supply chain, from store location to distribution and plant sites. Two unique differentiators are the use of specific error over the lead time for each SKU and respecting the location interdependencies at each stocking node. This overcomes the traditional mathematical scaling approximations and pooling assumptions required by conventional MEIO and leads to more accurate inventory recommendations. In addition, the solution is tightly coupled to E2open's demand sensing which cuts volatility and allows customers to further reduce safety stock.

E2open has focused on consolidating Terra Technology's capabilities into its demand-driven, multi-enterprise supply chain solutions. To that end, a significant update of the UX for all E2open's products will ensure a consistent look and feel for customers who have deployed multiple tools from the vendor. Nucleus expects the UX update to help the vendor's usability, complementing the IO solution's functionality, which includes tools to develop statistical maximum inventory targets based on a SKU's perishability or obsolescence as well as a simulation tool to run scenario analyses.

E2open caters to enterprise customers with complex, multi-tiered supply chains. It delivers a highly scalable solution with some of the best demand-sensing capabilities on the market, translating to better forecasts and more accurate supply plans which can mean significant financial benefits to enterprise customers.

GAINSystems

GAINSystems delivers best-of-breed capabilities in its MEIO tool as part of its supply chain solution which includes demand planning and forecasting, replenishment and production optimization, and sales, inventory, and operations planning. GAINS, which stands for General Adaptive Inventory Solution, takes the approach that its models and algorithms can be effectively applied across industries such as manufacturing, distribution, and maintenance, repair, and operations.

Customers can optimize a number of parameters, such as minimizing total annual cost relative to optimum service level. Users are given visibility of current stock levels and the associated costs of a stock-out for any item at the SKU-location level. The solution also reports a comprehensive error statistic that incorporates demand and supply variability. GAINSystems gives users tools to determine the best sourcing for items with visualizations that chart input hierarchies that allow recommendations to be analyzed. Unique to the solution, GAINSystems provides users with disservice probabilities which demonstrate the costs of a lost sale or expedited shipments relative to the cost of holding more safety stock.

GAINSystems has invested in improving its product usability, with a new user interface built in HTML5 that offers completely configurable dashboards and data displays and works across any platform or device. The vendor has deployed machine learning methods to adjust future inventory plans based on planner action or inaction. It is exploring how to apply machine learning capabilities more broadly in its solution to improve automation when the system encounters a situation that resembles one it has encountered in the past. Overall, the vendor delivers a robust product to a broad range of companies, offering speed of deployment, a next generation UI, and competitive return on investment.

Infor

Infor's IO capabilities fall under its Supply Chain Planning product set which includes capabilities for demand planning, S&OP, supply chain planning, scheduling, and supplier management. Infor is in the process of delivering its products to the cloud, such as Integrated Business Planning, which is currently offered as a single tenant cloud solution.

With IBP, Infor has built the framework for a broad suite of supply chain applications such as S&OP, demand planning, and supply planning. Infor optimization capabilities are based on demand planning, taking all constraining factors into account. The IBP framework includes master data management on which prescriptive and predictive analytic capabilities sit.

As Infor brings more of its capabilities to the cloud, it will continue to leverage the social collaboration tools via Ming.le and the UI and UX delivered by its creative lab, Hook & Loop, giving Infor the foundational elements to build a robust cloud solution. Added to that are the capabilities of two Infor acquisitions, Predictix and GTNexus, which deliver demand analytics

and extended supply chain visibility, respectively. With Predictix, which is designed to provide insights into unstructured data, Infor can deploy a tool that helps omnichannel retailers better understand demand and make more accurate demand plans as part of their MEIO process. As a result of the continued investment and push to the cloud, we expect the value Infor delivers to its customers to steadily increase.

JDA Software

JDA Software continues as a best-of-breed vendor with its IO capabilities as part of its Manufacturing Planning solution, a comprehensive suite of supply chain components. With origins in complex manufacturing and with the ability to optimize across thousands of SKU-locations, JDA's inventory planning product delivers scalability to accommodate the needs of large retail customers, and can be deployed on-premises or in the cloud. The MEIO application allows organizations to optimize around several KPIs including service level, customer wait time, and cost. The solution enables users to segment inventory based on any number of attributes and to define a target group of items that can have different demand variability, inventory turns, or lead time. The planner can define a group service level target or budget and the IO solution can optimize levels for each SKU based on the parameters and attributes of each item. The tool can also optimize for replenishment intervals to ensure stock levels are maintained.

Users noted a positive UI, with dashboards that present KPIs and exceptions that need to be addressed. The client can then drill down for more granular information, including details about the root cause of errors or exceptions and see information about the financial and logistical implications of any exception at the item-location level, with the subsequent downstream impact charted out. With the scenario planning and what-if tools included in the IO solution, users can set an inventory budget target and then classify items based on several factors such as services level or item importance. The IO engine will determine how far the budget will go toward satisfying the customer's defined needs and where they will fall short.

JDA is investing in additional capabilities that help customers contend with irregular inventory issues, such as non-stochastic demand patterns and the lumpiness of product demand. The company is also investing in machine learning and integrating third-party data into its modeling abilities, with greater automation capabilities on the roadmap. The vendor will continue

to deliver value through its IO tool, catering to organizations of any size or complexity with its full suite of supply chain tools.

Kinaxis

Kinaxis's inventory optimization is part of its RapidResponse supply chain planning solution suite, which consists of 13 different applications. Customers derive more value from using the solutions in concert rather than isolation, however, the MEIO application can be delivered as a standalone software as a service cloud offering. Based on the mantra "know quicker, act faster," Kinaxis's algorithms are demand driven, with the IO tool integrated to balance all of the competing constraints, drawing on multiple data sources in near real time. RapidResponse also provides a what-if scenario analysis tool that planners can use to see how relevant KPIs and service levels would be affected by changes in the supply chain.

Kinaxis is currently targeting usability enhancements that cater to digital natives who are more accustomed to simple, boiled-down application interfaces. Additionally, Kinaxis is developing enhanced reporting capabilities that help the collaborative process necessary to set optimum inventory levels. Users will be able to identify how safety stock has changed and where there are risks in demand based on the changes being recommended. Users can chart out a plan to achieve a more optimum level of inventory that can be used collaboratively with stakeholders.

Another area of attention for Kinaxis in the inventory planning and optimization space is building users' trust with the engine, despite heterogeneous skills and adoption techniques. The ability to model non-normal distributions for demand and lead time variability is unhelpful unless the users can understand the results. Kinaxis's approach to change management increases its overall usability and helps create user adoption for the recommended changes. The vendor appeals to customers who are looking for an end-to-end planning and execution solution, with MEIO capabilities that can meet a broad range of customer needs.

LLamasoft

LLamasoft delivers an IO solution as part of Supply Chain Guru, its flagship product. The IO capabilities are tightly coupled with other parts of their supply chain offerings including production optimization, supply

chain simulation, distribution, and network optimization. The solution takes a holistic view of inventory in the supply chain from safety stock to pre-build and in-transit. LLamasoft has made its name in supply chain network design which translates to using IO as both a strategic and a tactical tool running inventory simulations to test the performance of recommended inventory policies.

The MEIO capabilities start at optimizing safety stock holding costs and use linear and dynamic programming to analyze demand. LLamasoft has up to 10 classes of demand to which it applies a number of probability functions, with the tool determining which probability function has the best fit. The IO tool propagates demand through the rest of the supply chain upstream, against which users can test inventory scenarios to determine the financial impact.

LLamasoft's simulation tools help users determine whether inventory policies will meet the required service levels across every echelon. The supply chain modeling helps users adopt the IO recommendations with interactive visualization tools that present the optimization as more of a "sandbox" rather than a "black box." LLamasoft currently uses machine learning capabilities to improve its demand modeling and is currently offering Supply Chain Guru as an on-premises or cloud deployment. LLamasoft is continuing to invest in its IO capabilities, helping companies to better visualize how to optimize and what the impact of inventory policies is on the company's bottom line or its service level.

Logility

Logility offers the Voyager Inventory Optimization product which delivers a scalable MEIO solution. Available in the cloud or on-premises, Logility offers a full suite of supply chain capabilities within Logility Voyager Solutions, with tools to optimize demand and supply with replenishment and manufacturing planning, to optimize retail with merchandise planning and assortment and allocation, and to optimize transportation for shipments and pooling opportunities. Logility also offers an integrated business planning solution that fulfills customer's S&OP needs as well as built-in collaborative planning, forecasting, and replenishment through a multi-enterprise business network.

Voyager Inventory Optimization gives users visibility into inventory inputs and tools to allow them to make necessary adjustments. Users can

customize dashboards to track KPIs and manage exceptions with alert collections. Voyager Inventory Optimization also publishes the math behind a recommendation, so users can quickly gain additional insight and establish trust in the solution, rather than relying on a black box approach. The high configurability—allowing users to customize not just what they see, but set parameters that drive inventory policies down to managing inventory targets on a SKU-location level—gives Logility a notably high degree of usability.

In addition to optimizing inventory based on location, distribution, and multiple tiers of suppliers, Logility has been busy on the functionality front, delivering automation capabilities. For example, Voyager includes machine learning technology that automatically switches the applied optimization model if the system determines there is a better model available. Additionally, Logility is delivering improved inventory modeling that analyzes multiple scenarios to support a customer's monthly sales, inventory, and operations planning.

Logility is continuing to add to Voyager Solutions suite including adding “fat-finger” interfaces that allow for easier navigation on mobile devices. Logility is also looking to leverage third-party and unstructured data sources to help accelerate demand sensing efforts. We expect the forthcoming enhancements to deliver additional end-customer value. As it currently stands, Logility delivers one of the most user-friendly solutions on the market and with MEIO capabilities that can meet the needs of most customers.

[Manhattan Associates](#)

Manhattan Associates offers a suite of inventory solutions including advanced planning, demand forecasting, replenishment, and an S&OP module. All its IO customers utilize the forecasting and replenishment tools, which are delivered in the cloud or on-premises.

Manhattan Associates uses a proprietary algorithm for its demand forecasting called Unified Forecasting Method (UFM), which blends multiple forecasting models. The UFM self-adjusts to changing forecast parameters and adjusts the forecast methodology to deliver granular demand detail, leading to better demand and order projections. The system is designed to handle multiple use cases with limited user involvement and is more effective in scenarios with greater complexity and diversity of demand signals.

On the replenishment side, Manhattan Associates is built for multi-echelon, multichannel networks. Taking a holistic view of an organization's value

chain, Manhattan is designed to optimize across multiple tiers to reduce total network inventory while maintaining service level targets. Manhattan's omni-inventory optimization considers the variability of forecasts across channels and allows users to optimize service level targets by their selling channel to optimize overall buying. Manhattan is also deploying self-learning algorithms that help tune inventory strategies, finding and correcting ill-fitting inventory profiles.

To help visualize adjustments, Manhattan includes embedded simulation tools so users can compare scenarios. Customers can also generate dashboards and portlets that display relevant KPIs. As part of its inventory optimization tools, Manhattan includes a number of standard reporting templates as well as allowing users to leverage IBM Cognos out of the box to develop custom visualizations.

With the recent release of its S&OP tool, Manhattan helps organizations translate planning into operations, with additional what-if simulation capabilities. The continued investment in cross-cutting stakeholder engagement helps organizations better optimize inventory strategies across the entire enterprise. Manhattan Associates delivers a flexible MEIO solution, which, in combination with the other parts of its solution suite, can meet the needs of almost any customer.

One Network

One Network delivers inventory optimization capabilities as part of its Real Time Value Network (RTVN). One Network delivers a multi-company supply chain network platform that connects trading partners, suppliers, and distributors, giving organizations better visibility and coordination capabilities than the traditional outside-in approach to the enterprise.

As part of its Inventory Management service, One Network's RTVN captures inventory data such as lead times, order policies, batch size, and production frequencies across multiple parties on the network to determine the optimum inventory target. The system also factors in demand signals from downstream sources in generating forecasts. The optimum inventory level considers multiple tiers of trading partners matching the demand forecast against inventory held within the network.

Over the last year, One Network has been deploying intelligent bots within the network which are designed to automate many of the more menial tasks of managing inventory levels, helping users focus on more strategic

initiatives. By setting inventory policies, the bots can make automatic adjustments to maintain the desired service levels or minimize costs. The latest release of RTVN delivers dashboards to help users visualize data as well as collaboration tools to help users work with other members of the network more seamlessly.

Although One Network is primarily a control tower, those who have deployed it can leverage the IO capabilities within the solution. By delivering a demand-driven supply chain solution, One Network helps its users optimize inventory levels across the network rather than just within the enterprise's four walls.

Oracle

Historically, Oracle has delivered an inventory management solution but has been focusing on inventory optimization as part of their supply chain planning or integrated business planning solutions. Oracle is also in the process of bringing its IO capabilities to its Maintenance and Service Parts Cloud. Oracle can deliver its IO capabilities as a module of its value chain suite, which it is moving to cloud—with the core pieces such as demand management, demand variability, safety stock planning, and S&OP currently available in the cloud or on premises—and the vendor has plans to deliver inventory planning and policy planning to the cloud within the next year.

Oracle's IO solution uses randomly selected, probabilistic models for discrete industries as well as multi-echelon capabilities. Supply chain planners can optimize around minimum inventory as well as service level targets, cycle stock, and capacity constraints. Users can also look to optimize service contracts due to payer capabilities, routing constraints, and sourcing. Oracle delivers capabilities that help users define an aggregate service level target for an inventory segment, optimizing each item based on demand, variability, and availability.

Users get a consistent UI regardless of whether they have deployed on premises or in the cloud. Planners can leverage scenario analysis that looks at all elements of the enterprise, allowing users to test multiple service level strategies based on inventory levels and constraints. As with other vendors, Oracle views its IO tool not as a standalone product, but rather as capabilities that are vital to supply chain planning and risk management. With more supply chain tools being delivered via the Oracle Cloud, we expect customers to achieve better value moving forward, with flexible deployment options

and easier technology management, especially for smaller enterprises who might not have previously considered Oracle.

SAP

SAP delivers one of the most functionally rich offerings in the market. SAP's IO capabilities come as part of SAP Integrated Business Planning (IBP), which has four supply chain applications in addition to inventory optimization: S&OP, control tower, demand analytics and sensing, and supply planning and response. IBP's inventory capabilities leverage SAP's acquisition of SmartOps in 2013, and SAP has continued to build on what was a market-leading best-of-breed solution when it was acquired. SAP IBP is cloud-based, running on the HANA platform, which utilizes in-memory processing to deliver responsive performance and reliability.

SAP IBP calculates optimal, time-phased inventory targets at the SKU-location level using stochastic models for risk, variability, and uncertainty. The system considers customer service levels and profitability objectives when developing an optimized plan for inventory holdings and service levels. Users can build what-if scenarios using the simulation engine and are presented with dashboards and analytics to gain visibility into the drivers of change in the supply chain. IBP also presents users with the drivers of inventory to remove the black box around an optimal recommendation.

SAP IBP 1702 included enhancements such as the Supply Chain Network Visualization application, which gives users the ability to visualize the entire supply chain network based on key relevant data through heat maps and interactive graphical representations. SAP IBP applications can run on the SAP HANA platform in the cloud, leveraging the SAP Fiori user interface, allowing users to access the software from any web or mobile platform. Customers can use the in-memory database when performing scenario analysis and simulations of the entire inventory model in real-time.

SAP continues to invest in its MEIO capabilities, with growing momentum in its cloud solution, helping customers to go live more quickly and start achieving value. Like many other vendors, SAP can deliver its IO application as a standalone offering but has seen customers realize better value when implementing more of the IBP applications that work in concert to deliver better plans. Additionally, SAP IBP integrates with any cloud-based or on-premises enterprise resource planning system, regardless of vendor, giving users flexible deployment options. The improvements SAP continues to make

on its IBP solution set are designed to help enterprise customers get better control of their inventory levels and supply chain overall.

Slimstock

Slimstock offers a supply chain solution called Slim4 that includes demand profiling, forecasting and demand planning, IO, S&OP execution, replenishment, and multi-echelon planning. The inventory optimization comes within the inventory management modules and determines the correct inventory level at each item location. Safety stock and reorder level are determined dynamically based on organizational inventory policies. The system adjusts to changes in policy such as a change in desired service level and can manage across diverse types of stock. Slimstock provides optimal order-level when the inventory module is integrated with forecasting and planning. As a result, customers can ensure that stock and order levels are balancing working capital and service levels.

Though primarily based in Europe, Slimstock has been making inroads in the North American market, delivering a revamped UI and adding modules that cater to specific industry verticals. Customers should consider Slimstock if they are unsure about the benefits they could garner from an IO solution since the vendor will only sell the software if it believes the customers will have a payback period of under one year.

Smart Software

Smart Software offers two MEIO solutions that help customers make better inventory policy decisions: SmartForecasts and Smart Inventory Optimization. Both solutions can be integrated on the vendor's Smart Platform, which delivers native web-based applications.

SmartForecasts is the vendor's demand planning, forecasting, and inventory forecasting solution, delivered via a hosted service or installed on-premises. Customers can set service level targets based on future demand predictions and stocking parameters. Its usability is enhanced by workbenches that allow users to share and override forecasts based on events, promotions, and other intervening factors.

Smart Inventory Optimization is designed to allow users to optimize inventory considering parameters such as current safety stock, order quantities, and reorder points. Inventory levels are linked back to KPIs and a variety of

inventory costs. Smart Software gives users tools to modify policies and build consensus by creating what-if scenarios. The solution promotes management by exception, so users receive alerts about modifications that can be tracked and implemented.

ToolsGroup

ToolsGroup sets an industry standard, delivering usability and functionality that helps customers achieve value through one of the most autonomous inventory optimization and supply chain planning solutions on the market. Like many other market leaders, ToolsGroup's IO solution can be sold as a standalone solution but is overwhelmingly packaged as part of a more holistic supply chain package. The IO application can be deployed on-premises or in the cloud and is part of ToolsGroup's Service Optimizer 99+ (SO99+) platform. SO99+ also includes solutions for demand forecasting, demand sensing, supply and demand collaboration, production planning, and promotion optimization.

ToolsGroup delivers a single data model across its platform, thereby accurately translating the effect of a change in one area to the rest of the operation. The MEIO tool gives users the ability to optimize across multiple echelons based on the service level for each stock keeping unit (SKU) by location. Users can also assign an aggregate service level target for a group of items, which the optimization engine then translates into an appropriate individual target for each item in the mix, based on item parameters such as anticipated demand, lead time, margin, seasonality, and historical sales data. ToolsGroup calls this "Service Level Optimization." Users are updated on the financial implication of any change in target service level or inventory policy.

To address usability, ToolsGroup delivers visualizations on its dashboards that can display core analytics or exception management. In addition, the solution includes a report builder and modeling tool to help users quickly understand the situation and determine what steps to take. ToolsGroup has also deployed machine learning capabilities to help improve forecasting and demand planning. Customers can leverage historical data to determine stocking levels for new product launches or seasonal products, with the optimization engine determining what attributes were significant in matching the actual demand with anticipated demand.

ToolsGroup is also delivering capabilities that help companies with

products that have lumpy, non-normal demand curves or require a holding inventory to account for long-tail demand. Looking forward, the vendor is planning to leverage more social sensing data, which could be used to improve demand sensing and help planners set inventory targets for new product launches. These solutions are designed to reduce the burden on planners by making the inventory optimization and supply planning process more autonomous. We see the enhancements as value drivers for customers with complex inventory holdings looking for a best-of-breed solution that can close the loop from long-term sales and operations planning to demand modeling to inventory optimization to replenishment.

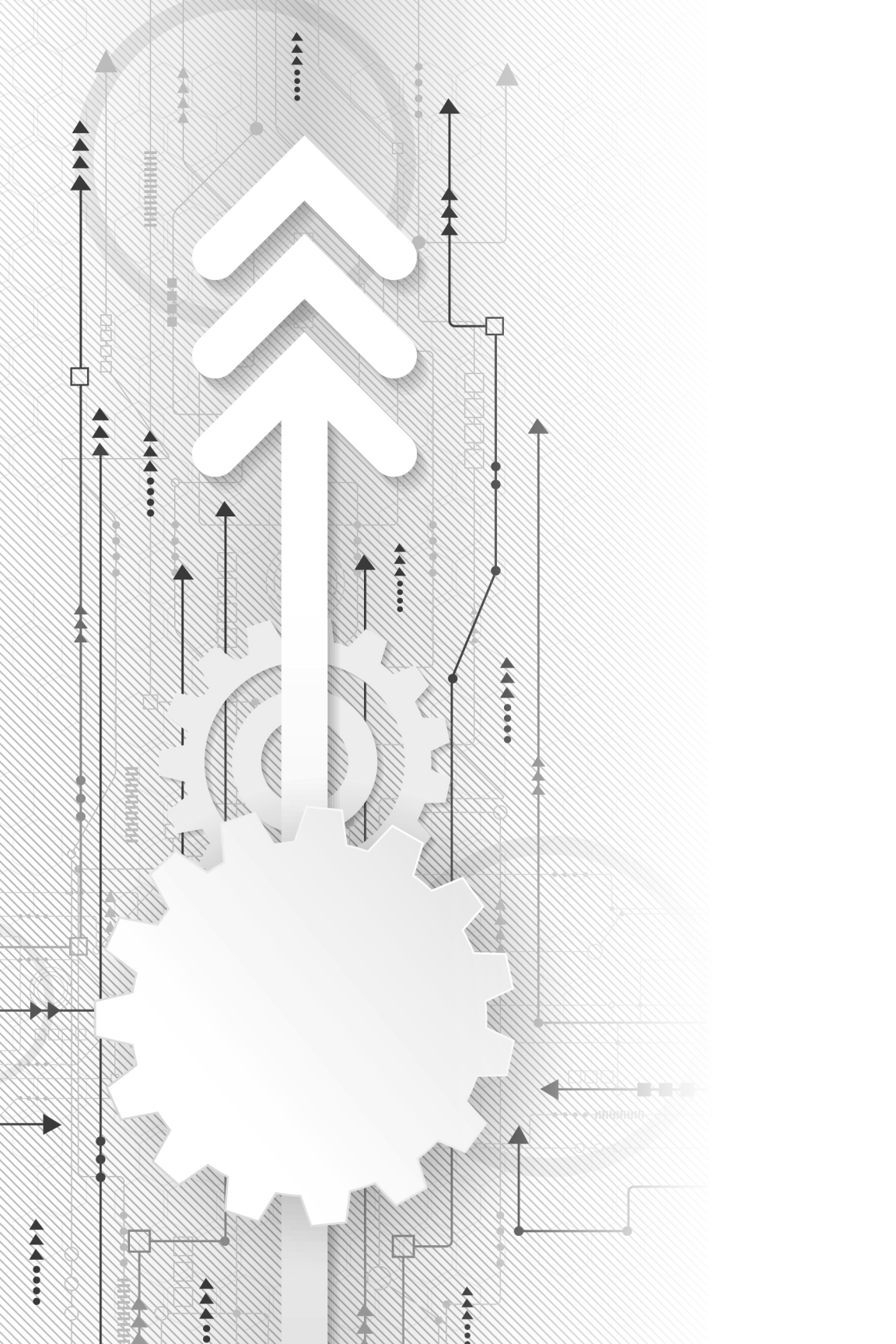
Vanguard

Vanguard Software has developed a MEIO solution to complement its flagship forecasting product within its supply planning modules. In addition to MEIO, Vanguard has solutions to address sales forecasting, demand planning, financial forecasting, and S&OP. The vendor has invested in delivering extensive analytic capabilities that cut across industries, with customers leveraging the solution as an integrated business planning solution or on a module by module basis.

Built on the philosophy that inventory is impossible to optimize in isolation, Vanguard customers typically add IO to the demand planning for forecasting and replenishment planning. Moreover, customers get the greatest value when the forecasting capabilities are used in conjunction with the MEIO. Vanguard delivers over 28 statistical forecasting models with a machine intelligence-based engine that optimizes the forecast. Using Monte Carlo simulations, customers can calculate safety stock, order quantities, or reorder triggers, leveraging the in-memory capabilities to run multiple scenarios, with dynamic recalibration of KPIs for each calculation.

Vanguard's MEIO solution has the scalability to address four million SKUs per minute, with a malleable workflow to cater to customer requirements. The solution is browser-based with customizable dashboards, charts, and tables to help customers better visualize key data. Vanguard's focus is on linking the IO and Monte Carlo simulations around lead time and forecasts. It is also in the process of developing a production planning solution to accompany its purchase order and replenishment planning and linking it into the financials of the customer. The capabilities the solution has today deliver value to customers looking for inventory optimization that is linked

to forecasting and replenishment and provides analytic models that address nearly every business circumstance.



CHAPTER 9

ENTERPRISE CONTENT MANAGEMENT

Enterprise content management (ECM) has experienced another disruptive year with multiple mergers, expansion of compliance regulations for personal information privacy, and a distinct shift from standalone applications to embedded or integrated platforms. Companies must continue to evolve with the current business landscape to meet the changing demands of end users.

We have identified the defining feature of ECM products in 2017: the ability to integrate with other business software tools. When ECM software is incorporated into the workflow of employees within business process management or customer relationship management applications, user adoption and employee productivity greatly increase.

There are two core ways that ECM products are incorporated into an integrated enterprise software environment: as a lead application or as a background application. A lead application focuses on ECM capabilities and has been modified to include BPM or other workflow processes. It is an expansion of the ECM platform designed to take on more business needs with a single interface. A background application subordinates the ECM product as an embedded role within a different application. Most integrated applications still lean towards the lead application side because of their previous status as standalone ECM products. Those companies' products retain their identity as primarily ECM-focused but are moving in the direction of the integrated business environment

We have identified five features of ECM products that differentiate

vendors and are current areas of change: deployment, intelligent capture, autoclassification, integration, and governance.

- **Deployment options.** The cloud continues to prove that it is the most effective deployment method for ECM software. Many legacy systems, however, are on-premises. In some cases, such as rural locations with inconsistent access to a cloud-based system, on-premises may be necessary to maintain uncompromised uptime. Some companies have opted for a hybrid deployment with certain information stored on-premises and certain information stored in the cloud. We predict that this practice will continue to decline due to the prevalence of cloud deployments for first-time customers.
- **Intelligent capture.** Enterprise content is generated in multiple formats and integrated from multiple sources. It is important that an ECM product can smoothly pull together disparate types of information. One key feature of such a product is repository agnosticism, which eliminates the need for data migrations.
- **Autoclassification.** ECM vendors are leveraging AI and embedded analytics technologies to automate the process of classifying, tagging, and sorting enterprise content. Automating manual processes like these boosts accuracy and saves time.
- **Integration.** ECM products primarily function in a business environment with multiple enterprise software products and ensuring that an ECM product fits within the overall technology structure of a customer's company should be seamless and part of the vendor's product design.
- **Governance.** With integration of ECM into employee workflows, secure governance is essential. This issue is becoming even greater with increased regulations being adopted globally, such as Europe's upcoming expansion of its consumer data protection laws, such as the General Data Protection Regulation (GDPR).



Enterprise Content Management Value Matrix

Dot indicates current position. Arrow indicates trend in 2018 relative to others in the market.

Accellion

Accellion kiteworks features a private-cloud, secure content collaboration platform with strong security controls that integrates with data loss protection (DLP) solutions. With a modular multi-tier architecture, siteworks also provides organizations with a highly scalable and flexible solution.

Encryption keys are owned by the user business, mitigating unauthorized access and the solution provides geographic policies to meet data residency requirements. It is not apparent if this is adequate to meet GDPR

requirements, but it does meet the requirements for other industry standards and government regulations.

The kiteworks application specializes in mobile file, sync, and share (FSS), with minimal IT set-up needed. Customers have provided mixed feedback, with some indicating a poor user interface as a trouble spot. The kiteworks 3 release addresses sensitive information sharing, improving compliance with internal policies and industry regulations, and offers direct file access from Microsoft Office.

Alfresco

Alfresco is an advanced ECM solution that appeals to technical buyers and developers, with a robust search engine based on content and metadata. The product is offered with cloud, hybrid, and on-premises deployment options. It features a clear and straightforward user interface and is introducing BPM and governance functionality into its product, with the Alfresco Process Service and Governance Service, which have both been effective according to customer feedback. Compliance and support have both been noted user issues for Alfresco.

The product is based on an open-source platform that is greatly customizable, making it an attractive option for companies with large internal development resources. Alfresco also does their own customization for specific industries such as finance, government, and healthcare, improving the business case for companies looking for more specific out-of-the-box functionality.

Recently, Alfresco announced its Digital Business Platform, which aims to integrate the various open-source elements of process management, content management, and governance, creating a unified platform.

Amazon

Amazon's ECM product, ElasticFile, is a cloud-based file storage service for applications and workloads that run in the AWS public cloud and was released in September 2016 to fulfill the role of a private cloud file storage system. It is tightly integrated with the AWS platform and is fully managed by the vendor. It is both fast and scalable.

On the other hand, customers feedback shows that the product has heavy limitations in functionality and only works through Amazon EC2. With a relatively high price tag, it may only fill the ECM role for companies already well integrated within AWS.

Box

Box leads the pack on cloud content migration with consistent simplicity of use, low cost, and accelerated digital transformation. Box Zones enables global businesses to use Box as their content management platform while storing their data in their local region, assuring regulatory compliance specific to their needs.

Box Shuttle manages data migration to the cloud, making use of intelligent capture and classification to facilitate the process. With Box Shuttle, companies can make unique content management plans that suit their individual needs for the initial data migration and setup. Box Shuttle has excellent integrations, making it simple to extract various data streams to the company's repository.

Box has added features that allow individuals to create custom business processes to simplify workflow, making Box a front-runner in the push to integrate ECM with BPM. It has also improved its collaborative function, Box Notes, which allows interaction with a single document. Box's strategy of continual investment in functionality and upgrades for content management has transformed the company into a robust cloud-based content management service.

Box's partnership with Microsoft is expediting the ECM transition to full-service cloud content management, with better collaboration, sharing, and global access. Box will also have access to greater AI and machine learning through Microsoft Azure.

Digitech Systems

Digitech Systems is largely concentrated in the healthcare market, offering workflow management, intelligent capture, support, and policy-based governance. Digitech has recently made improvements to security, workflow application, and business rule capability. Digitech's recent release and responsiveness to customer input have produced enhanced usability, especially for mobile devices, and a unique interface can be customized for each user.

Although Digitech appeals to a niche market, its rapid deployment, focus on Europe's GDPR compliance, integrated BPM functionality, and consistent customer support make it a strong vendor. It has many features that are specifically applicable to healthcare data management, such as patient information rights, confidentiality, and personally identifiable information (PII).

DocStar

DocStar was acquired by Epicor Software Corporation in January 2017, and its ECM product is now a part of the Epicor ERP solutions portfolio, giving it strong integration with the company's other products. DocStar further extends Epicor's "cloud-first" strategy, a key part of its utilization of automating document and form-based processes within an organization. In addition to serving the Epicor client base, DocStar continues to invest in and support the non-Epicor customer base. DocStar's ECM and business process platform are available as on-premises and cloud deployments.

Since DocStar was acquired, functionality and usability are beginning to improve, a trend that we expect to continue in the future. Being a part of the Epicor organization has enabled DocStar to leverage Epicor's capabilities in areas such as business analytics and mobile platforms and continue to develop additional out-of-the-box solutions for processes automation. The product is repository agnostic and uses autotclassification to simplify manual processes. Security is simple and based solely on user permissions. Although the product has high usability, customer support is inconsistent—but more recent users have noted improvement in the support function.

DocuWare

DocuWare has basic document management capabilities and offers good workflow management. The application is well integrated with mobile apps and has an intuitive drag-and-drop interface. Much of compliance and security is automated within the product. There is integration with Microsoft Outlook, which has been integrated into the dashboard display with activity tracking.

DocuWare's product is divided into several modules to make customization easier, the vendor offers a software developer kit for customers managing customization themselves. As such, DocuWare is best geared towards SMBs with its out-of-the-box functionality and menu-driven configuration. The DocuWare Version 6.11 release improved performance and made processes more intuitive, adding full functionality with a web browser, refining Workflow Manager features, and redesigning the Outlook integration.

Dropbox

Dropbox Business is easy and cheap, with pure FSS capabilities that target only core ECM needs. While it gets the job done for small businesses, it has limited functionality, issues with the interface, and poor security. Customers report very poor support.

Recently, Dropbox announced a network expansion including a custom-built infrastructure moving from AWS. This change is expected to improve the user experience by keeping down costs and speeding up delivery.

Egnyte

Egnyte is a highly usable product with intuitive out-of-the-box drag and drop capabilities, with robust collaborative tools and a strong mobile application. It is a cloud-based product, but can support hybrid deployments. Egnyte has tight integration with Microsoft Office. Smart searching simplifies the basics of FSS through effective use of metadata. Egnyte Protect is also a cloud-based governance solution that identifies sensitive data and enforces access policies across multiple repositories. For European Union clients, Egnyte stores personal information in its European data center and is well positioned to meet GDPR.

Egnyte Connect, the FSS product, is mobile integrated and works well for remote workflows. Customers report excellent support. Egnyte's governance application, called Egnyte Protect, is cloud-based and functions across multiple repositories. Although Egnyte is still focused on core enterprise FSS uses, it is steadily expanding its functionality.

Fabasoft

Fabasoft features an intuitive and easy-to-use interface and is integrated with Microsoft Office, with built-in predefined BPM processes. Searching is easy and driven by metadata. Fabasoft has a much larger presence in Europe but is beginning to break into the US market. As such, they have greater security and compliance with European GDPR than other similar vendors. Fabasoft's recent product update focused on big data capabilities for security and compliance, as well as expanding workflow and digital management organization.

Google

Google Drive, Google's file sharing application, has improved significantly in the past year. It has good out-of-the-box usability, has good archiving capabilities and is inexpensive, making it a good choice for companies that do not need a full-fledged ECM solution or that have limited needs and resources.

Google Drive works best in conjunction with other Google products like Gmail because of their inherent integration and synchronization features. Customers report that support is lacking, however, and that there are issues with alerts, redundancies, and duplications. Overall, Google Drive performs basic collaboration and FSS functions well but does not go beyond core ECM.

Hyland

Hyland's ECM product is a flexible application with seamless integrations and robust customizability, helping users work more intuitively with their content. OnBase has consistently high customer support and the application has excellent capture and scanning capabilities. Hyland expanded its extensions of OnBase in 2016 to include ShareBase with strong out-of-the-box functionality through fast cloud deployments. It is mobile accessible with an effective search engine including enterprise FSS functionality for collaboration with internal and external parties and security can be managed at the user level. The AirBase offering is designed for companies with limited internal IT resources by handling much of the configuration on the back end through the cloud. AirBase functions similarly to OnBase, Hyland's flagship product, but with a lightweight deployment targeting the needs of SMBs.

In the 2017 release, Hyland focused on improving user experience through customer driven changes. The release included improvements to capture and indexing functionality, BPM tools, electronic form processing, and security.

Hyland's recent acquisition of the Perceptive portfolio from Lexmark has been finalized and the company has committed to supporting its content solution and providing new product releases as well as compatibility upgrades. Although Perceptive and Hyland share similarities, this acquisition could cause some problems, and several clients voiced concern. There are differences in deployment strategies, repository capabilities, and code-lines, potentially leading to clashes between the resultant parallel platforms.

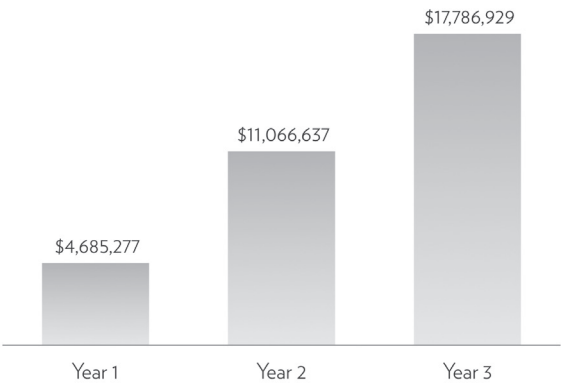


ROI Case Study: Hyland OnBase

Wisconsin Physicians Service Insurance Corporation
ROI: 268%

Wisconsin Physicians Service Insurance Corporation (WPS), a not-for-profit health insurer, deployed Hyland OnBase to alleviate inefficiencies in processing Medicare-related contracts. Working with consultants from Naviant, Inc., WPS implemented Hyland Software, Inc.'s technology to automate key elements of workflow. As a result, WPS was able to increase its processing volume and reduce printing costs.

CUMULATIVE NET BENEFIT



THE COMPANY

Founded in 1946, WPS provides an array of insurance for individuals, families, and businesses. In addition to all this, WPS is also a Medicare Administrative Contractor (MAC) for the Centers for Medicare & Medicaid Services (CMS). As a MAC, WPS credentials and enrolls more than 100,000 physicians and medical facilities seeking to offer services to Medicare patients. It is for these MAC-related services that WPS lacked modern technology for automation. The situation left WPS turning mostly to spreadsheets in order to contend with a complex

administrative workflow generating a preponderance of paperwork.

KEY BENEFIT AREAS

Direct benefits came in the form of reductions in staff and printing costs, as well as the eventual retirement of this WPS division's use of FileNet. Productivity gains accumulated as staff benefitted from Hyland OnBase-facilitated automation to reduce the average time it took them to complete MAC-related requisitions.

- **Increased efficiencies.** Before the deployment of Hyland OnBase, the average time it took enrollment specialists at WPS to complete each MAC-related requisition strained the organization's efforts to meet deadlines. That average time has dropped by nearly 70 percent.
- **Improved productivity.** Staff's newfound productivity gains enabled WPS to reduce headcount by 35 percent. Concurrently, with significantly fewer staff on payroll, enrollment specialists completed 28 percent more requisitions in the year immediately following deployment of Hyland OnBase.
- **Streamlined management.** The much-needed automation that Hyland OnBase brought to workflow also lessened WPS's need for managerial oversight to complete MAC-related requisitions. The vice president of Medicare IT no longer heads up the process. Hyland OnBase-attributable efficiencies have also enabled WPS to reassign one manager and two supervisors who, under the old scenario, had provided oversight of these MAC-related activities.
- **Reduced printing costs.** The previous workflow at WPS to process MAC-related requisitions was heavy on paperwork and related printing. Through automation, printing needs have decreased. Since deploying OnBase, WPS has printed 1.4 million fewer pages annually. The cost savings around this have been significant.

BEST PRACTICES

Administratively burdensome workflow can easily impede organizations' effectiveness. As our analyses of user cases have repeatedly shown, technology that automates workflow lifts these burdens. WPS's experience with this on-premises deployment of Hyland OnBase is a good example and makes sense. Elsewhere, our analyses further show that a significant ROI from automation is not uncommon. When improvements are significant, ROI can eclipse the initial costs of on-premises technologies. In the case of WPS, operating in an industry where regulations limit organizations' use of cloud-based technology, Hyland OnBase has brought WPS savings to counterbalance what we have found in other cloud deployments.

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IBM

IBM's Content Manager is a robust and scalable application that fits well with other IBM products and is most appropriate for large scale enterprise environments with the ability to manage complex configurations. IBM has a strategic partnership with Box that leverages Box's enterprise FSS capabilities for content collaboration. IBM's product is offered as a cloud, on-premises, or hybrid deployment.

Although the Content Manager is powerful, it is not very intuitive and requires significant technical expertise to configure and modify. The application should be implemented by qualified personnel since there are customization points that are not obvious for a regular IT administrator or software developer. Additionally, several users noted that the Watson analytics offering was confusing for ECM options.

Laserfiche

Laserfiche offers a modular product with strong application integration and compliance. Laserfiche is one of few ECM vendors with strong, organic annual revenue growth without mergers or acquisitions. Laserfiche users benefit from frequent updates and releases across on-premises and cloud

deployments. The ECM solution's high rate of usability is due in part to a common code base, relatively simple customization, field autopopulation, rapid deployment, and a robust mobile application, among other factors.

Their most recent update, release 10.2, delivered improvements to various modules such as the availability of 102 templates in the Business Process Library to condense ramp-up time for new users. Additional enhancements and upgrades include invoice processing using autogenerated metadata directly from documents, a real-time collaboration tool called Discussions, personalization of the mobile application, and further advancements to metadata customization and search capabilities. Laserfiche ECM has a BPM workflow component which automatically routes and processes new documents to help users create customized applications. Laserfiche security is applied at the user, document, and system levels and is well positioned for assisting clients with GDPR compliance.

Laserfiche is sold exclusively by a strong network of more than 450 VARs, allowing the company to focus a greater percentage of its financial resources on research and development. Laserfiche users are uniformly loyal and the annual retention rate approaches 96 percent. However, some customers have reported that several product features are shared between multiple modules, making selection choices unnecessarily complicated.

In the past year, the company focused on the ubiquitous ECM theme of the “digital transformation journey,” introducing a five-step roadmap to digital success. Laserfiche's primary goals to that end are moving all customers to greater control, automation, and eventual transition to the cloud. The five stages are: digitization, organization, automation, streamlining, and transformation. With that said, it continues to offer on-premises deployments for companies still unable to move to the cloud.

[M-Files](#)

M-Files has a strong user interface that is easily customized and integrated with other applications. The product is repository agnostic and has metadata-driven search capability. It has many of the progressive features of ECM such as intelligent capture, autoclassification, and context-driven BPM. The M-Files metadata driven architecture search function focuses on the context of a document—the “what” versus traditional folder search that focuses on the location—the “where” delivering faster and more relevant access to data. M-Files ECM solution simplifies GDPR compliance by assisting companies

in the management and control of personal data. M-Files automates this process for businesses and provides supporting information for GDPR auditors.

The release of M-Files 2015.3 allows users to search multiple vaults, continues metadata enhancements, improves the speed of many daily operations, and provides advanced performance monitoring tools. This release also improves API integrations and mobile applications.

Customers have reported that M-Files has consistently improved usability and has strong user support. Some users have indicated that there is a minor learning curve to the product, but that overall, usability is very good.

Micro Focus

Micro Focus merged with HPE software in September 2017 and is a multinational software and information technology business. Its Content Manager is a governance-based application that is designed primarily for those highly regulated enterprise businesses such as government, healthcare, and financial services. It has excellent compliance and information security capabilities, and the company has invested significantly in preparing for the upcoming European GDPR data security laws. The Global Policy Center monitors global regulatory activity and imports any changes into Content Manager for application of policies, maintaining current data sovereignty rules.

The application has a single-sign-on (SSO) system, boosting integration, usability, and security. The product features autotclassification and indexing. The policy and regulation awareness for customers makes the product especially effective for any enterprise with emphasis on security and compliance. In addition to managing content, Micro Focus manages risks and creates business value with vigorous collaborative tools, best practices, contextual data mining, and enterprise searches across multiple platforms.



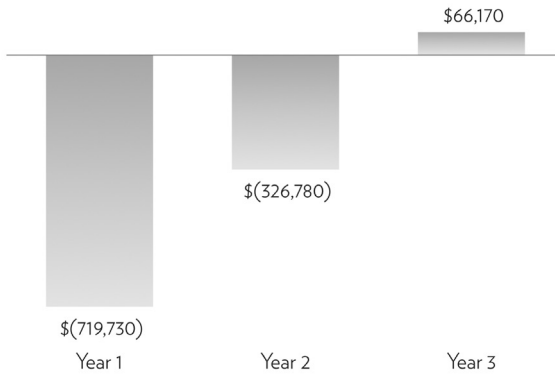
ROI Case Study: Micro Focus Content Manager

Biopharmaceutical Company • ROI: 35%

A biopharmaceutical company eliminated a legacy content management system and consolidated multiple document management and archiving systems into the Content

Manager application. Nucleus found that beyond reducing software and hardware costs by \$158k per year, the consolidation yielded improved control over compliance and retention policy changes as well as increased productivity from improved document searching efficiency.

CUMULATIVE NET BENEFIT



THE COMPANY

The company profiled in this case study is a multinational biopharmaceutical company which offers services that manufacture and distribute primary care and specialty care medicines.

KEY BENEFIT AREAS

The consolidation under Content Manager resulted in accelerated search times and an overall document management efficiency increase from reduced time for legal holds and administrative burdens. The company also experienced greater control over compliance, legal holds, privacy, and retention policies. Key benefits from this consolidation include:

- **Increased productivity from more efficient searching.** Company personnel only need to log into one system and can search for all organizational documents regardless of whether the documents are physical or

digital, resulting in fewer searches.

- **Increased productivity from streamlined retention policy changes.** Given the organizational impact of retention policy changes on the global company, by embracing a single document management system, the company was able to better streamline issuing of its multi-annual policy updates and make them accessible for everyone.
- **Reduced cost of one full-time employee.** With the consolidation, the company was able to rely on a smaller support staff which resulted in a full employee being able to allocate time and resources elsewhere.

BEST PRACTICES

Organizations that process large volumes of records benefit from centralized systems that offer personnel global access to either electronic documents or the right information to acquire paper files. Information silos often impede organizations in costly ways. Being aware of and prioritizing which documents are the most in need of being electronically archived can be crucial for organizations looking to maximize their document management systems.

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Microsoft

Microsoft's ECM suite of products, including SharePoint and OneDrive for Business, offers excellent functionality and is seamlessly integrated with all other Microsoft products. Microsoft Flow is the automation engine for workflows across the ECM Suite with multiple templates and code-free design. The ECM Suite has basic BPM functionality and is easily scalable. However, some customers have reported that the product is difficult to configure and customize without expertise. The product is offered as a cloud, on-premises, or hybrid deployment, with cloud integration through the OneDrive for Business application.

SharePoint and OneDrive enable lifecycle content management with the use of the capabilities of Microsoft Office 365, allowing content to be found,

consumed, and governed across all of Office 365. Some users noted that compatibility can be an issue for SharePoint and OneDrive with non-Microsoft products. Safari, Chrome, and Firefox are supported by Microsoft, but some customers report that working with non-Microsoft documents can be problematic and have struggled with other browsers. In light of recent product releases and enhancements to browser compatibility, we believe that these issues may stem from users who are still on older versions of SharePoint and have not taken advantage of recent updates.

Security needs are addressed via the Office 365 records retention and policy capabilities in the Microsoft Security & Compliance Center, allowing an administrator to centrally define a policy and enforce document retention and deletion rules. GDPR readiness can be assessed by an online self-evaluation tool located in the Microsoft Trust Center available to Office 365 users. For customers who are happily committed to using Microsoft products, SharePoint and OneDrive are excellent extensions of the Office experience.

OpenText

OpenText features excellent out-of-the-box usability with an intuitive user interface and modules that give clear choices to clients. Functionality has continued to grow with a focus on extending ECM into business processes and leading applications that support these business processes. In doing so, OpenText solves many of the problems that plagued ECM deployments, by automating the application of metadata, eliminating adoption issues, and capturing and providing content in the context of business processes.

Regulatory compliance and security are robust, and while OpenText assists and advises clients along GDPR guidelines, it correctly does not guarantee compliance with their product. GDPR is a complex, evolving target, and each user shares responsibility for compliance.

Recently, OpenText acquired Documentum, the ECM branch of Dell EMC. The acquisition significantly expands OpenText's customer base, information archives, and key verticals. There appears to be a minimal overlap of the products and OpenText had committed to long term support of the Documentum platform. Additionally, the OpenText partnership with Microsoft provides deep insights into roadmaps, APIs, and early technology adoption programs giving it the capability to deliver products and integrations with—and sometimes even prior to—general availability.

Magellan, an AI-based predictive analytics platform that combines

open-source machine learning with advanced analytic capabilities and business intelligence to provide for better decision making and task automation was recently released by OpenText. The company acquired Covisint Corporation, a cloud platform with IoT applications. This acquisition is expected to expand OpenText's presence in the automotive industry and will be integrated into its business network.

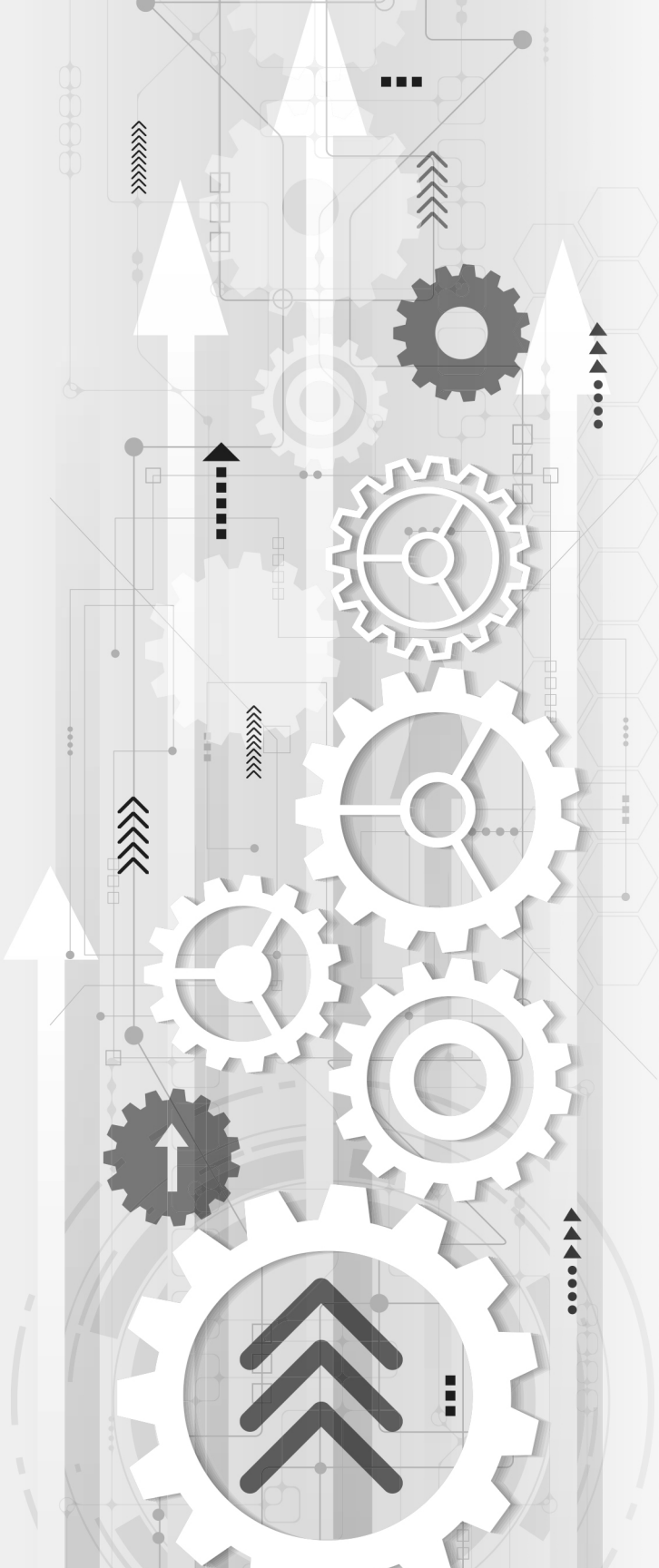
OpenText is expanding beyond the traditional ECM market to encompass enterprise information management, solving business problems that span structured and unstructured data, while adding investments in analytics, IoT, case management, and cloud services. As OpenText continues to acquire and build additional process automation, it will continue its leadership position as a formidable player.

Spring CM

Spring CM's ECM and Contract Management product offers great functionality but sacrifices some usability. Customers emphasize the quality of the collaboration tool and consistently high customer support. The product focuses heavily on contracts but somewhat neglects other aspects of ECM.

The biggest disadvantage to Spring CM is the non-intuitive method needed to search the database, which uses folder location instead of content. This nonintuitive approach, while effective once learned, requires users to change the way they organize their own information for faster searching. The focus on contracts means that the product will have varied appeal among prospective customer based on the degree of contract versus other content needs present.

In recent product updates, Spring CM improved its workflow designer for BPM, which is currently usable in its by-request beta form. Spring CM also improved their Doc Launcher References to manage confirmations, forms, and field libraries. A planned change for Spring CM is document previewing, which will improve usability and clarity for users.



CHAPTER 10

ANALYTICS

Analytics and business intelligence (BI) are not new concepts in the market place, but the exponential growth of offerings, lower total cost of ownership (TCO), and simplified deployment options have made these solutions a necessity for modern businesses. Some customers continue to use a comprehensive stack of a database, extract-transfer-load (ETL) tools, an analytics engine, and a reporting interface from a single vendor, placing much of the burden on IT to keep operations running and produce reports. However, many businesses are finding success with a different model based on smaller-scale deployments of self-service or embedded analytics and data discovery tools directly to end users.

In speaking with customers, we researched how customers and vendors have adapted to recent changes in the market. Additionally, we found that Excel still features significantly in SMB BI stacks alongside other more robust solutions. The transition from Excel marks a significant change in a customer's analytics journey, and the facilitation of that change has been a focus of many self-service solutions. We identified four major trends in the analytics market that demonstrate how users are re-thinking legacy problems and how business needs are changing:

The BI stack diversifies. The traditional BI market was dominated by big-name vendors offering technology stacks to manage data, run queries, and produce reports. Hardware was an expensive yet essential element of technology solutions, and it was easier for businesses to work with a small number of vendors, providing a simpler landscape for IT. With the arrival

cloud services, licensing options became more flexible, hardware investments were minimized, and businesses have become less reliant on IT for management of the BI process.

We found that some companies manage their BI needs with simple data discovery, visualization, or dashboarding tools and can deploy any size analytics projects with flexible cloud licensing. Enterprise businesses also use these tools for dashboarding or visualizations, adding advanced functions such as machine learning and predictive analytics. Simpler deployments and function-specific vendor offerings have made customers more comfortable with the idea of a multi-application BI stack, incorporating best-of-breed products to meet business needs.

Split into Two BI Camps. We found that vendors took one of two approaches to meet customer needs and innovate existing products. Mature vendors with long market history and loyal, legacy customer bases focus on functionality and well-developed products. They adopt a “functionality first” approach to BI, opting to rely on performance as the driving factor for success with a lesser focus on usability.

The second group of vendors are mostly younger companies that entered the market in the past ten years. These vendors often have a “usability first” approach to BI, and offerings may have limited functionality—instead focusing on easy deployments and high usability.

Free desktop versions. Critical to the success of many vendors are free desktop versions of the product, with customers noting that users working with free versions were a major reason they selected a vendor for enterprise-scale deployments. These vendors offer enterprise licensing when customers want to expand across the business. For end users, this model allows them to test drive the product without going through a formal licensing process. Some customers said that departmental deployments led to business-wide deployments because of flexible cloud licensing options.

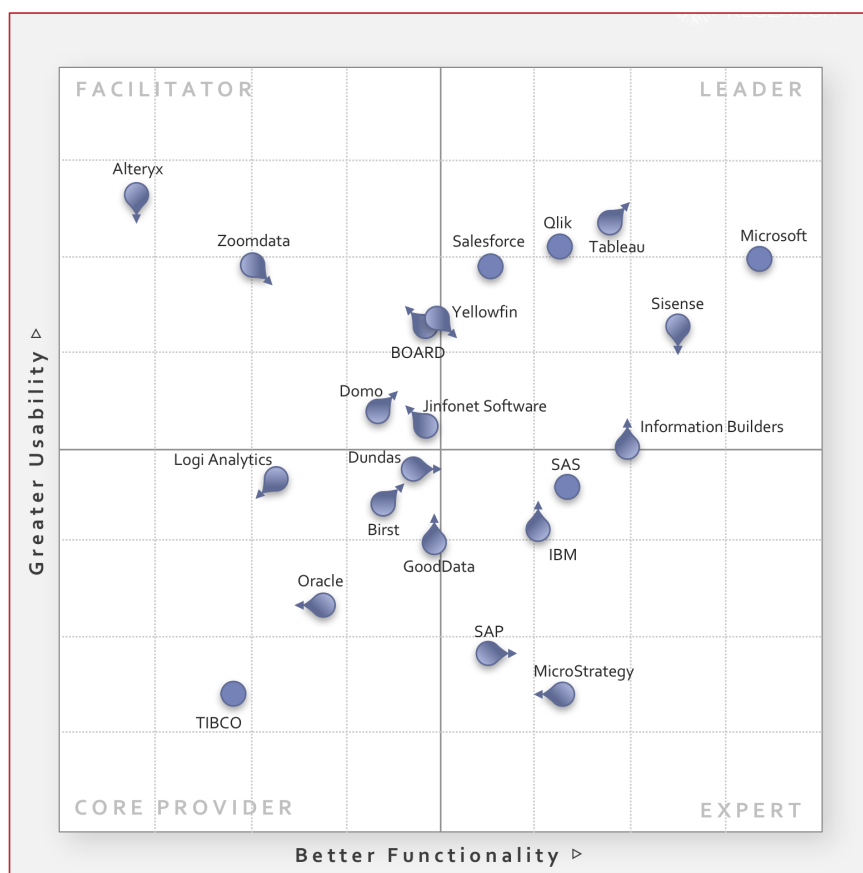
Embedded reselling. Data monetization has been an important way for vendors and original equipment manufacturers (OEMs) to generate revenue from compiling and reselling data. Some vendors offer their customers dashboarding and embedding tools that allow those OEM's to use their own customers' data to provide value-added reporting. The trend of OEM embedding has led to an even greater adoption of BI for all sizes of business.

Throughout our conversations with customers, we identified several common threads for recommendations about customers' experiences with analytics in general. Customers noted that it was important to involve the

end user earlier and more often. We found that those customers that involved end users in the selection process experienced more successful deployments. Incorporating end-user input into the decision-making process will shorten the project's time-to-value, reduce the possibility of disrupted deployments, and promote user adoption.

It was also important to prepare the data before deploying a new analytics solution. Customers reported that they identified their analytics goals, carefully selected a vendor, and began deployment only to realize that their data was unruly and that they had to do extensive data preparation before they could successfully deploy. The result was a slower payback period and delays of multiple deployment processes during the initial roll out.

Some products need more internal support, some less. We received a range of comments on usability and functionality for each vendor. Digging deeper, we realized that customers did not always have a clear roadmap when embarking on an analytics project. Inadequate projections of how much internal IT support would be needed to succeed resulted in confusion among end users when they found certain offerings inexplicably complex. In the growing world of self-service BI tools, it might seem that end users can easily build any report and that drag-and-drop functionality is ubiquitous. In truth, this perception can lead to poor allocation of internal IT resources and create unreasonable expectations regarding ease of use.



Analytics Value Matrix

Dot indicates current position. Arrow indicates trend in 2018 relative to others in the market.

Alteryx

Alteryx has expanded aggressively and, with two recent acquisitions, is investing heavily in its product around data blending, data management, and advanced analytics. Consequently, it does not compete directly with full end-to-end BI solutions.

Users that chose Alteryx also considered standard self-service tools as well as advanced analytics and statistical analysis offerings, indicating that Alteryx does have some diversity in its user base outside of its specialty area

of ETL.

Users found the drag-and-drop interface to be intuitive and said that it was easy to automate processes. The product excels at ETL and data blending and is often used in tandem with other BI tools to cover their data integration issues for complicated or varied data sources. Customers commended the ease of exporting data into other common tools like Qlik and Tableau. For advanced analytics, Alteryx is investing in improving machine learning and advanced modeling capabilities, and users were satisfied that they could use R within the Alteryx module. As R is a common “competitor” for advanced analytics customers, this integration provides a level of comfort and flexibility for data scientist familiar with R’s capabilities within a supported product framework.

Alteryx is limited in its functionality for traditional or ad hoc reporting, with some customers reporting that in some limited use cases they continue to use Excel.

We found that Alteryx is not suited for end-to-end BI, nor is the product designed for it. Alteryx fits into the increasingly popular BI model of deploying several products together to augment each other’s strengths and manage other vendors weaknesses. Given Alteryx’s focus on advanced analytics, it is likely to keep pace with overall functionality improvements in the market.

BOARD International

BOARD differentiates itself by offering a company the ability to centralize its CPM and BI processes within a single interface on a single unified database, eliminating the need for a multi-product stack.

BOARD has its largest presence in the Europe Middle East Africa (EMEA) region, but has recently gained visibility in the United States with a U.S. co-located office in Boston and the introduction of BOARD Cloud in 2015. The BI offering meets the requirements of many users because of its depth of functionality for SMB and enterprise environments. Some customers initially deployed BOARD in a single department and expanded their program to other areas of the business, a strategy consistent with BOARD’s functional flexibility.

Ease of use is the most consistent positive feedback from users, citing that it is simple to implement and to create reports. Customers also noted confidence with the BOARD roadmap and feel that the company is innovating well compared to the market. Deployments of the product and vendor

support are smooth, and customers often deployed departmentally, expanding the product to other business lines as needed. Users also commented that the product was easy to customize and had good data integration capabilities.

Customers consistently reported that the peer community and online resources were inadequate and diminished usability, with customers requesting a formal user manual. Customers also noted that the licensing structure was confusing and inflexible.

BOARD's strength is in its data reporting and modeling capabilities, making it equally useful for CPM and BI. The single UI across CPM and many areas of BI contributes to its well rated usability. Businesses that want to consolidate CPM and BI reporting will benefit from the BOARD offering. BOARD's limited North American visibility, lack of a global user community, absence of online resources, and limited depth of functionality in certain specific BI areas currently prevents the company from leading the market.

Birst

Birst's recent acquisition by Infor will open it up to Infor's large customer base and shift its product strategy to be more integrated with the data management and data sources provided by Infor's enterprise resource planning (ERP) system. Customers reported that the end-to-end nature of the product was a key differentiator, and the product appeals more to small or medium businesses without a strong data architecture already in place.

Customers said that Birst met the need for traditional and ad hoc BI needs, dashboards were easy to build, and visualizations were good. Customers reported that the data integration and ETL for Birst was excellent. Users felt that the community and documentation were both strong, boosting usability for the product. They also reported consistent confidence in the Birst roadmap and were excited about the improvements likely to result from the Infor acquisition.

Birst's position in the midmarket works best for medium-sized companies that require solid data integration in a business-wide deployment and have sizable data integration requirements. For smaller businesses, users noted that the product was much more complex than other lightweight solutions. Additionally, customers reported that Birst did not handle large data sets or enterprise-scale requirements well, and that governance, change management, and version control are issues.

Some customers reported issues with implementation due to poor vendor

interactions during the sales process, problems with third-party deployment partners, or issues with their data model that were not talked through before implementation. Birst also trails other vendors in advanced analytics and embedded reporting.

Domo

Domo is often used as the front end dashboarding and visualization tool for organizations that already have a robust core application. In less complex use cases that do not require a lot of customization, Domo can meet all an organization's BI needs. Great collaboration capability, robust pre-designed templates, and a plethora of data connectors were factors highly praised by customers. Users cited web dashboards and in-report annotations as effective ways to quickly share and receive feedback on reports. Visualizations, dashboarding, out-of-the-box features, and the product app-store were also strong functional plusses.

Domo's deployments were quick and easy, and users found online resources and the Domo community to be helpful. Customers said that they appreciate the pace of Domo's update cycle and felt that Domo was continually investing in the product and had a solid roadmap.

As developers moved away from pre-designed templates and out-of-the-box reporting, usability was affected. Some clients reported that the product became less intuitive and more difficult to navigate. A notable percent of customers interviewed remarked that the sales process did not always reflect the actual product capabilities and found Domo's pricing structure to be confusing.

Users also reported that features they expected to be in the product were either missing or still in beta when they deployed Domo and that the Beast Mode function, which allows developers to do large-scale calculations within the data set, can be difficult to use and experienced execution issues.

Domo offers a competitive solution for data discovery, dashboarding, and pre-designed reporting. It derives most of its success from quick deployments for those use cases that do not require significant customization or ad-hoc reporting. Users select pre-designed reports and share them efficiently and effectively across the business lines. Domo's focus on cloud-only or hybrid deployments allows it to improve its architecture and target new customers. Domo does not yet have the maturity of many other solutions though and falters when cases become large or complicated. Because of its continued

investments and growing customer base, we see Domo improving in both usability and functionality over the coming year as it addresses vendor-side issues and further develops its product.

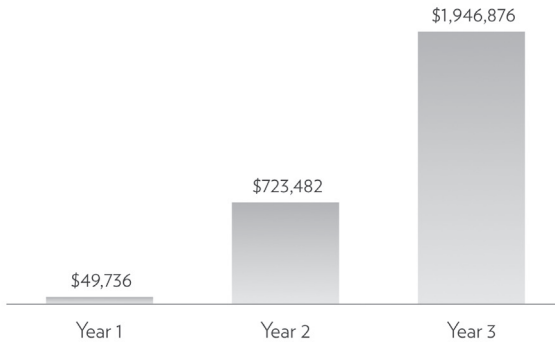


ROI Case Study: Domo

Ingo Money • ROI: 424%

Ingo Money deployed Domo visual analytics to replace their Excel-only system as their data and business requirements grew. By training several “Domo experts,” Ingo Money was able to drastically increase access to and understanding of their data, leading to productivity boosts across multiple departments such as client services and the risk control team. Low upfront cost and total cost of ownership allowed the customer to leverage a high ROI from a small investment.

CUMULATIVE NET BENEFIT



THE COMPANY

Ingo Money, based in Roswell, Georgia, is a push payments technology and risk management company that provides solutions for businesses and people to pay and get paid, helping them convert cash, checks and ACH into instant digital payments. With the Ingo Money

API, businesses and banks can originate corporate disbursements, P2P payments, check deposits, and bill payments funded in real-time to more than four billion debit, prepaid, credit, private label credit and mobile wallet accounts.

With an estimated 20 billion paper checks issued every year, Ingo Money can eliminate much of the unnecessary time and costs associated with this huge volume of transactions. The company's platform has already processed more than \$9 billion in consumer-facing payments and is branching out into the larger market of company-originated payments.

In 2012, Ingo Money developed a direct-to-consumer mobile app to allow individuals to cash checks instantly via a mobile device. Their technology is also embedded in apps for other companies who want to give their customers instant access to funds.

KEY BENEFIT AREAS

On the whole after deploying Domo, Ingo Money saw significant company growth with only minimal growth in overhead expenses, greatly improving the bottom line. The benefits come from avoided hires, increased productivity, avoided costs due to fraudulent checks, and better understanding of advertising efficiency.

- **Avoided hires.** As the company took on more customers, their client services department grew proportionally much more slowly, indicating a greater efficiency of current employees. Risk underwriters were able to complete their tasks faster and with fewer errors, resulting in the need for fewer new hires in the risk center.
- **Employee productivity.** Several groups of employees experienced productivity gains, including the supervisors and the "Domo experts." The Domo experts had 50 percent of their time freed up and were able to redirect that time into supporting other groups like marketing or sales.

- **Ad spend efficiency.** Because they were able to link ad channel data into Domo's analytics tool, the company also found that they were able to better understand how their ad spend translates into customers.
- **Avoided costs.** The risk team at Ingo Money is responsible for mitigating costs due to fraudulent checks. A significant portion of these reduced costs over the past several years is attributable to Domo, due to greater recognition of fraud signs through more all-encompassing analytics made easier to deliver with Domo.

BEST PRACTICES

Ingo Money initially began with an Excel, which was able to handle their smaller requirements, but the company quickly outgrew Excel's capabilities. For companies using similar software, it is important to recognize when potential limitations outstrip the cost saving benefits. For Ingo Money, the benefits of Domo exceeded their initial list of limitations from Excel, having a wider impact on the company. Some departments had more concrete gains, such as a better understanding of customer acquisition channel efficiencies in marketing, while others were more qualitative. Companies should be aware of how different types of benefits can be realized across different departments based on how they interact with data.

The greatest driver of ROI for Ingo Money was the short deployment period and very low total cost of ownership (TCO). As most companies have now recognized, cloud deployments are fast, more flexible, and generally have a lower TCO, and such products should always be evaluated first.

Companies should also not underestimate the ripple effect that a deployment in one department can have on peripheral departments. In the case of Ingo Money, the "Domo expert" team became so efficient that they were able to support departments that previously did not interact with as robust a set of analytics, such as marketing, sales, and their risk underwriting. The executive team now

feels that overall, they make better decisions since their deployment due to the increased visibility into their data.

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Dundas

Dundas BI is a browser-based business intelligence and data visualization platform that provides end users the ability to create interactive custom dashboards, build customized reports, run ad-hoc queries, and rapidly analyze data and performance metrics.

Dundas has heavily customizable dashboards with overall high functionality for embedding in internal and external-facing applications. Developer flexibility was noted by users as one of Dundas's greatest strengths. Users also reported that usability is also good once they have gone through proper training and have acclimated to the product. Customers stated that dashboard building is simple and intuitive and that support from Dundas was very good, especially with Dundas's VIP program.

Dundas BI is a complex tool that is best suited for expert developers. The advanced customizability of Dundas's dashboards comes with a steep learning curve, and users found that they needed to substantial training to efficiently use the built-in functionality. Some customers also experienced issues with delayed and inefficient deployments.

Dundas, like similar competitors, has high functionality in a specific area but lacks the overall strength or breadth to serve as a full BI solution. Its high investment in customer support means that it will retain a satisfied customer base as it branches out into new BI functionality areas. Beyond SMBs, Dundas can function as a dashboarding and embedding tool, but larger companies may find it hard to justify adding another tool to their stack. Additionally, Dundas BI is a developer's tool, requiring deep IT support, contrary to the market trend of simplicity and ease of use.

GoodData

GoodData's primary market focus is on embedded analytics, giving its customers the ability to create, embed, and resell GoodData dashboards to their own customers. With dashboards and visualizations as their



primary focus, GoodData is used both within a business for traditional BI use cases in addition to a narrower focus for embedded reselling.

In most deployments, either an internal development team or the GoodData development team create a set of dashboards that are then distributed to key business units, integrated with customer data for resale, or both.

GoodData has expertise in dashboard embedding and white-labeling that surpasses most of its competitors, and it also provides a development team to create the dashboards in cases where customers plan to immediately resell but lack the internal resources to make the dashboards themselves. Users felt that GoodData was easy to deploy with helpful consulting services and online resources. In general, customers required low internal support and overhead to manage the product. For the product itself, the dashboards capabilities, drill-down functionality, and visualizations were all high points.

GoodData does not focus on traditional BI and ad hoc querying and usually is not able to provide all the BI capabilities that a company needs on its own. Users complained about the outdated user interface and overall difficulty of use. GoodData made an effort to upgrade the UI in 2016, but the new interface lacked some functionality of the previous version and has led to low user adoption. The price of the offering was a prohibitive factor for some customers, especially small businesses, in comparison with other products.

GoodData is more of a niche product than a full-scale BI product, providing an effective embedding strategy on top of lightweight BI capabilities for some organizations. GoodData does not profess to be able to meet all a company's needs and is better suited to coexist with other BI tools as an embedded analytics and dashboarding specialist.

For more general use cases, the price and complexity make it a less viable solution than competitors who focus more on standard reporting, data integration, discovery, and collaboration. For companies looking to embed or white-label dashboards within their own product, GoodData provides a level of experience and assistance that few other vendors can offer.



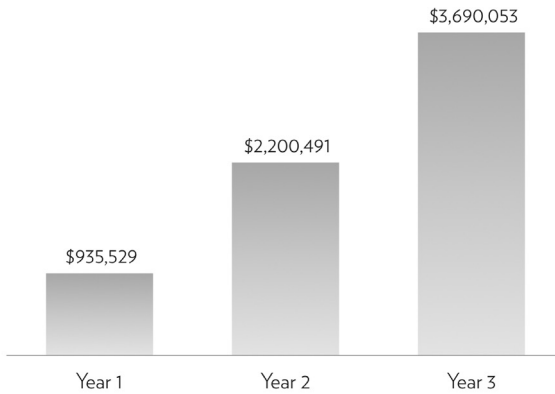
ROI Case Study: GoodData

Firehouse Subs • ROI: 683%

Firehouse Subs, a restaurant brand with individually owned franchises, deployed GoodData to manage

analytics dashboards for reporting and scorecarding across the whole company. Firehouse Subs needed better data management and an easier way for franchises to track their performance. With GoodData's dashboards, the company saw increased employee productivity and improvements in franchise revenues and scorecard metrics.

CUMULATIVE NET BENEFIT



THE COMPANY

Firehouse Subs is a fast-casual restaurant chain with a passion for hearty and flavorful food, heartfelt service, and public safety. Founded by brothers and former firefighters Chris Sorensen and Robin Sorensen, Firehouse Subs is a brand built on decades of fire and police service and its commitment to saving lives through the establishment of the non-profit Firehouse Subs Public Safety Foundation.

In 2015, Firehouse Subs expanded its brand presence to the international market, debuting in Ontario, Canada and further expanding in 2017 to Mexico City, Mexico. Also in 2015, the brand introduced its first digital loyalty rewards program, Firehouse Rewards, which allows guests to earn and redeem points for each visit through a smart-phone app. Firehouse Subs is consistently recognized as a leader in the fast-casual segment. For the last three years, Firehouse Subs was ranked number one by Technomic's Chain Restaurant Consumers' Choice Awards among fast

casual brands in the categories of overall brand (2017), food quality (2016), service (2015) and atmosphere (2014). *Forbes* recognized Firehouse Subs in 2015 as a *Best Franchise to Buy*.

KEY BENEFIT AREAS

The deployment had two forms of benefits: those resulting from more efficient reporting processes, and those derived from the analytics insights resulting in greater revenue. The company leveraged a greater understanding of their data as they expanded over the period after deployment, deriving a high return on their investment from this growth.

- **Faster ad-hoc reporting.** With access to GoodData dashboards, employees no longer need to rely on reporting and analytics staff to generate reports, saving the team eight full days per month.
- **Less data preparation.** With the company's data stream automatically input into the GoodData dashboards, the reporting and analytics team no longer needed to spend time cleaning and preparing the data for analysis. Along with faster reporting, this boost in productivity has allowed the team to devote time to other projects.
- **Increased scorecard grades.** Scorecarding is a common way for leaders and managers to track company progress. Because of the increased access to and ease of generating scorecards, the company saw increases in many of its performance metrics. An overall greater understanding of where to improve allowed managers to better focus their efforts.
- **Better data management.** The GoodData dashboards automatically codify data from customer service, restaurant performance, historical weather conditions, and operations, creating a central repository that is more organized and accessible.
- **Increased revenues.** The biggest benefit by far was

the greater catering revenues that resulted from insight into the company's data. The GoodData project was responsible for major business growth, with large upticks in sales for many restaurants per year since the deployment.

BEST PRACTICES

Where there are manual processes, there are inefficiencies that can be eliminated to free up personnel resources. In the case of Firehouse Subs, it was using its data and analytics team to manually prepare incoming data and generate ad-hoc reports. From both data management and analytics perspectives, the GoodData dashboards reduced internal efforts, freed up employee time, and increased data quality.

Self-service reporting is quickly becoming the way for businesses to create insight into their data from a “bottom up” approach. Managers are trained in how to use the analytics dashboards for their individual reporting purposing, eliminating reliance on a reporting team. For a company like Firehouse Subs, which has hundreds of franchises using the reports, individual manager autonomy led not only to faster reports, but improved scorecard results.

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IBM

Despite the strong push for Watson, Cognos BI remains the flagship offering from IBM. It is a mature, large scale product that has a significant market presence and user base. It features enterprise-grade tools for data integration, extract-transfer-load (ETL), traditional BI querying, ad hoc querying, and other key functionality elements. While there is overlap between Watson's and Cognos' place in the enterprise BI setting, Watson is still in its infancy as far as businesses are concerned, and Cognos will continue to be the primary choice for business users who need broad BI capabilities.

IBM's strength is its on-going investment in advanced analytics use cases and a reimagining of how BI can be used to improve a business, using

Watson as the figurehead of its analytics program. Cognos's relative ease of use and maturity have made users comfortable with the product, and it is easy for a business to hire developers who are familiar with it. The recent modernization of the user interface (UI) addressed a major customer concern about its inefficient and outdated appearance.

Cognos effectively scales for high volumes of data, making it a viable option for large businesses, and it has good integration with common data sources. Customers report that it works well out-of-the-box and is relatively easy to customize. As an end-to-end product, it has high functionality in traditional and ad hoc report generation.

IBM's weakness is in its usability. Although SPSS users report consistent ease of use, Cognos requires significant training and internal resources to maintain. Customers also report shaky vendor to customer interactions with mixed feedback on IBM support. Some users stated that Cognos had limited documentation and that IBM failed to maintain tight relationships with customers. These issues, in addition to the need for sophisticated internal resources, have impacted the choice of an enterprise-grade solution.

We see IBM as moving away from the current core BI market in its future roadmap with an increasing focus on advanced analytics and investment in Watson. This move may position them much farther ahead of their competitors if there is a shift towards advanced and predictive analytics for both enterprises and SMBs, but it is not a critical differentiator in the current market. Cognos, however, is a strong product with a large user base, and it will keep IBM as a viable option for many businesses looking for a base to their analytics stack or an end-to-end solution.

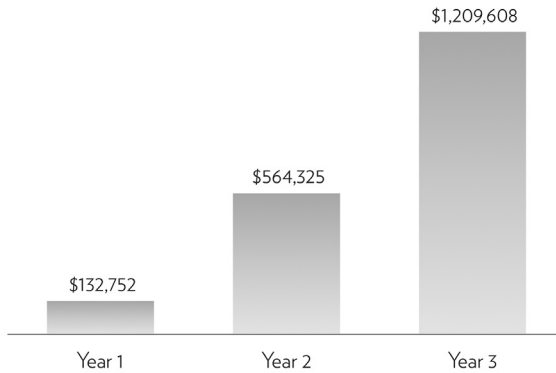


ROI Case Study: IBM Cognos Business Intelligence

International Airline • ROI: 90%

An airline deployed IBM Cognos Business Intelligence (BI) to expand reporting and analytics throughout the enterprise with improved self-service capabilities and easier access to data. Nucleus found that IBM Cognos BI enabled the company to increase management productivity, increase data visibility, and improve general staff productivity.

CUMULATIVE NET BENEFIT

**THE COMPANY**

The airline employs thousands of individuals to serve major terminals and transport millions of people to a number of destinations. It has been successful, winning a number of awards, and remains one of the primary sources of transportation on its continent.

KEY BENEFIT AREAS

Deploying IBM Cognos BI has enabled the airline company to support rapid growth while increasing the complexity and diversity of its business transactions. Key benefits of the project include:

- **Increased manager productivity.** The business intelligence manager is able to more quickly review and resolve reporting issues, assemble information, compile reports, and disperse information. In total, the improved capabilities have saved the BI manager 12.5 hours per week of reporting duties.
- **Increased visibility.** With the deployment, Airport KPIs were refined and reports were made accessible through a company portal. These measures ensure that information is readily available, and that the information used in decision making is both relevant and current.

- **Increased general employee productivity.** Employee productivity has improved in all departments, with the greatest gains seen in airline business development, operations, and, above all, parking operations. Parking operations have been able to improve productivity by 120 hours per week, or by 3 FTEs.

BEST PRACTICES

Like many BI customers Nucleus has analyzed, the company was able to take advantage of the improved data visibility and extend its use of IBM Cognos BI over time to support the growing needs of its business without the costs and disruption associated with upgrading and changing environments. The company is focused on expanding its investment in IBM Cognos and leveraging the infrastructure and required skill set, which are already familiar to employees.

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Information Builders

Information Builders is favored by larger companies looking for a depth of capabilities and has a strong presence in the midmarket. Users reported that an experienced internal IT team is critical for successful implementation of its product, WebFOCUS. Companies without sufficient resources to dedicate to large-scale deployments will likely struggle to achieve value from the advanced elements of this application.

WebFOCUS is a comprehensive end-to-end solution. Vendor support was consistently reported as high and users stated that WebFOCUS could manage high volumes of data without impacting processing speed. Its strong presence in verticals like education and healthcare and ease of customization rated well in user feedback. strong customer support, broad functionality, and continued innovation differentiate WebFOCUS from other vendors.

WebFOCUS has a steep learning curve that makes deployments slower to return value. WebFOCUS deployments are still largely on-premises, and although Information Builders is investing in more cloud availability, it lags behind market leaders with available cloud options.

Jinfony Software

Jinfony's product, JReport, is primarily focused on dashboard embedding and data visualization, allowing companies to directly use the dashboards for reporting or, in many cases, to white-label the dashboards and resell them to their own customers. Although it has standard reporting, the majority of customers use the product for embedding dashboards within their own business workflows or as a white-labeled product for resale.

Jinfony capitalizes on the growing trend of both internal embedded analytics and data monetization through the sale of customer dashboards. It has flexible deployment options and customers report that it integrates well with other products in their BI stacks. Customers noted that support, implementation, and user training were highlights of using the product. Customers also reported confidence in Jinfony's roadmap and felt that the company was innovating well.

JReport does not satisfy the full BI needs of a company except in very limited use cases. Users stated that the report designer interface made it difficult to manipulate report elements and that customization of dashboards was an arduous process. Although the high level of client support compensates somewhat, customers found that upgrades were often buggy. Jinfony Software will continue to operate best alongside other more traditional tools.

Logi Analytics

Logi Analytics has more targeted use cases than many of the other companies evaluated, focusing heavily on embedded applications to promote higher user adoption. Customers had the most success with Logi when using it as a small team. Logi Analytics may serve as a full BI solution for smaller companies that have a specific need for embedded functionality, but it will only serve alongside more robust back-end and data discovery tools for a large business.

Customers using Logi Analytics for embedding rated this function as efficient and effective. They also said that the product was flexible with good visualizations. Logi Analytics delivers a smooth deployment with good documentation and support from the vendor.

Logi Analytics' biggest issue for customers was its lack of functionality in other areas of BI, such as traditional reporting or data discovery. Customers said that the application had a high learning curve when it came to customization or creating complex reports. Users also noted issues when upgrading

to new product releases.

Logi Analytics serves a niche role in business environments in cases where embedded dashboards and reporting are the primary goal. The embedded analytics platform offers a clear method to engage otherwise hesitant BI end users, but overall, Logi Analytics does not provide a strong solution for end-to-end BI.

Microsoft

Microsoft offers the self-service analytics application Power BI, as well as SQL Server Reporting Service and SQL Server Analytics Service for IT-driven enterprise reporting and querying.

Seamless integration with the Microsoft suite of offerings makes it a reliable option for new BI users transitioning from Excel, as demonstrated by Power BI's rapid growth of a user base. Power BI can function equally well in enterprise environments or small deployments. Microsoft has recently made several acquisitions to strengthen its BI portfolio.

Microsoft's strength in the market is its easily adoptable products. Microsoft has a foot in both the large-scale database analytics and the self-service space with a dashboard style of BI that appeals to a broad spectrum of users. Customers stated that Power BI is intuitive and simple to use with uncomplicated deployments. User adoption is facilitated with accessible training modules and reporting templates. Customers reported that the visualizations and dashboard generation was intuitive.

Microsoft has strong understanding of the market and it has been able to leverage this knowledge to stay ahead of the curve for self-service and data discovery trends. Continued investment in Power BI and reliable improvements to SQL Server demonstrate Microsoft's long-term commitment to innovation. Companies looking to invest in BI, especially those coming directly from Excel, will find Power BI to be a smooth transition with a rapid ROI.

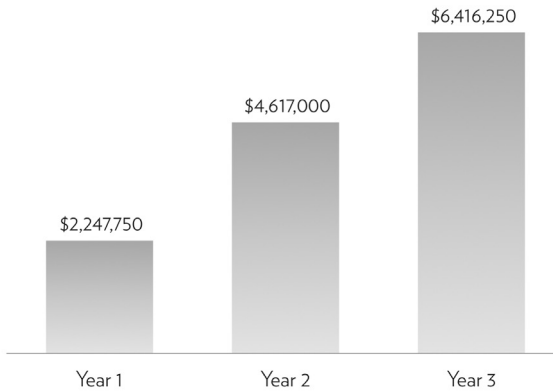


ROI Case Study: Microsoft

Renault Sport Formula One Team • ROI: 913%

Renault Sport Formula One Team deployed Microsoft Dynamics 365, Power BI, and Azure Machine Learning to support its racing car development processes. Nucleus found that moving to the cloud enabled the team to automate processes and combine disparate data sources to drive greater visibility and productivity and improve team performance.

CUMULATIVE NET BENEFIT



THE COMPANY

Renault has been associated with Formula One racing since 1977, both as a constructor and engine supplier. The current Renault Sport Formula One Team was formed with the purchase of the Lotus F1 team in December 2015. Based in Enstone, UK, the team is currently competing in the 2017 Formula One season, but over the years the team has collected more than 160 wins as engine supplier, ranking third in Formula One history. Team sponsors include Bell & Ross, Devialet, Genii Capital, Infiniti, BP, CD-adapco, Microsoft, Pirelli, and OZ Racing.

KEY BENEFIT AREAS

Moving to Microsoft Dynamics 365 has enabled Renault Sport Formula One Team to support its operational ERP needs and monitor costs at every level – critical for a racing team with budget constraints. At the same time,

the addition of Power BI and Azure Machine Learning has enabled the team to call up data in real time, analyze it with customized visualization and dashboards, and make decisions at the speed required to be more competitive. Key benefits of the project include:

- **Improved operational efficiency and cost control.** Before Dynamics 365, out-of-date data made it difficult for managers to have a clear view of budgets and the impact of changes, and enabled staff to sometimes circumvent normal processes with limited accountability. The structure of Dynamics 365 enables the team to ensure that rules and processes are followed consistently—particularly important in Formula One where teams can be penalized when they don't comply with very specific and constantly-changing F1 rules.
- **Increased productivity.** Because team members can access and input data from anywhere using mobile devices, and data from simulations and more than 200 sensors on the car itself are now immediately available, they spend less time finding and validating data and updating spreadsheets. For example, before every race or test, the team has to compile a report for shipping parts to and from the track so everything can be available and in place before the event. This process used to take weeks. It now takes a few hours.
- **Improved data for decision making.** The team can remotely send data and insights back to the design and manufacturing facility, and rapidly analyze that data using machine learning and Power BI, accelerating the time-to-decision and time-to-execution on new car design elements.

BEST PRACTICES

An important part of the use of Microsoft technologies at Renault Sport Formula One Team has been the ability to follow precise rules and processes while giving team members the ability to consume and input data with

a high degree of flexibility. This drives a high level of accountability while providing greater visibility into each team member's contribution.

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MicroStrategy

As a well-established provider of traditional BI reporting, MicroStrategy has strong reporting, dashboarding, and data discovery capabilities, and customers reported that the product was easy to customize.

Usability was a major negative in customer feedback. The product is heavily reliant on IT support and is not the solid choice for self-service analytics. Customers also reported very poor support, complicated deployments, and a poor sales experience. Some customers found the pricing structure to be confusing and experienced unexpected price increases over time that diminished their ROI on the project.

Users said that the basic training offerings were inadequate, and that the available resources such as tutorials and documentation were unable to alleviate the steep learning curve.

Other issues reported with the product's functionality were that it lacked the visualization capabilities of competitors, lacked some data connectors, and had a poor mobile experience. Some users struggled with the clunky semantic layer and had to use lengthy workarounds to achieve success.

Although it has been a major analytics vendor for several decades, MicroStrategy has recently lost ground to its competitors. Its enterprise-wide deployment model is becoming less popular as customers find more value in deploying point solutions and usability problems drastically limit its viability against other vendors who are innovating at a faster rate and better positioned to support their customers.

Oracle

Oracle is a mature vendor that has an established user base. Its products integrate easily with other Oracle offerings and efficiently deliver transactional reporting from an Oracle database. However, customers report that Oracle BI does not integrate well with the growing diversity of customer BI stacks. Some customers reported that OBIEE made financial sense for companies

already using Oracle E-Business suite due to ease of integration and an established vendor relationship. Outside of these circumstances, customers felt that it was difficult to justify the high cost of the Oracle solution when much of its value derives from integration with other Oracle products. Customers who evaluated or chose Oracle often also looked at other enterprise-scale vendors, indicating a market presence geared away from general users, to a full-service enterprise data strategy.

Integration with other Oracle products was the primary driver of successful deployments for customers who had a positive experience with the company. Customers also said that the solution was powerful, especially for traditional and ad hoc reporting, and that it was highly customizable.

Customers had minimal confidence in the Oracle roadmap and did not believe that it will remain a competitive long-term investment for their business. Users commented that the product was not modern, but rather had a clunky, cumbersome user interface. Much of the financial basis for the solution and its success was predicated on the use of other Oracle products. Other customers reported negative support or sales experiences with Oracle, and we received mixed feedback on smoothness of deployment.

Users cited poor out-of-the-box functionality, a need for customization, and a steep learning curve, as well as issues with usability and user adoption. Moreover, they also said that it has become difficult to find developers for the product, as new developers see Oracle as a legacy tool that is no longer relevant. The integration of Oracle products amongst themselves is also a double-edged sword, causing customers to feel that the only viable solution to issues with one Oracle product is to purchase another one or else forfeit a large hardware and software investment.

Oracle has not adapted well to the growing diversity of analytics solutions and continues to decline in popularity, especially since a contemporary generation of users trained on more popular or modern tools tend to promote the adoption of other, innovative vendors. Oracle relies on a large legacy customer base and will find it difficult to compete with a market trending toward highly usable self-service applications without a major hardware and software commitment.

For customers who are already entangled in the Oracle product set or are looking for a complete renovation of their company's data and analytics structure, Oracle may provide a justifiable solution. For most companies, especially departmental BI users or SMBs, Oracle will provide low ROI compared to agile point solutions or more well-adapted enterprise-wide vendors.

Qlik

Qlik has a strong presence in the market with its mature flagship product and ongoing product innovation such as QlikSense. Qlik View is an end-to-end solution for many companies, with the ability to handle enterprise scale requirements and deliver tools for individual users to create and share departmental content.

Users stated that the product was very easy to deploy and use. The robust online community, depth of user resources such as tutorials and forums, and vendor support as contributors to the product's success. Users reported that the product scaled well for large data sets, and Qlik recently released a data connector for R to allow for some advanced analytics.

The most frequent issue customers reported was that Qlik is not truly a drag-and-drop application, although marketed as such. Users reported more difficulty than anticipated with ETL and report generation. Users also noted that the learning curve was steeper than expected.

Qlik offers a strong product suite that covers most areas of BI and analytics. QlikSense is a tool for self-service data discovery for SMBs and large-scale environments. While it has some improvements to make around its mobile interface, certain aspects of usability, and clarifying how its products interact, we expect it to retain its position as a leader given its continued investment in its products and broad user base.

Salesforce

Salesforce occupies a dominant position in the CRM market, and its analytics offering is geared towards its current CRM user base, serving as a native platform within the user experience to drive high adoption rates. We found that most Einstein users had existing Salesforce applications in their business, and the addition of Einstein Analytics and Discovery to the stack was relatively quick and easy. This year, Salesforce announced Einstein AI and Einstein Vision, both designed to bring AI into Salesforce products with specific functionality around visual data detection, product marketing, and other visual data-based features.

Native integration with Salesforce data and ease of deployment were consistently noted by customers. Users also praised Salesforce's visualizations



and customer support, stating that Einstein provided more robust tools than standard reporting capabilities of the individual Sales Cloud and Service Cloud modules. The product is easy for end users and has excellent out-of-the-box functionality, but it does require some additional training for advanced applications. Users were very confident in the Salesforce roadmap.

Einstein seamlessly integrates with Salesforce data, yet users struggled with ETL and integration with third-party sources. Users who want to move beyond the templated reports found it difficult to customize and reported that functionality was less robust as compared to competitors. Newer to the market than many established vendors, Salesforce's analytics tools are still experiencing growing pains.

For Salesforce customers, Einstein Analytics is a native method to get a usable and functional application into the hands of end users quickly, without a complicated deployment. Standard BI use cases fit in well with the strong template and mobile capabilities of Salesforce analytics. AI and machine learning power Einstein Discovery, delivering advanced, predictive analytics with trend analysis, and specific recommendations.

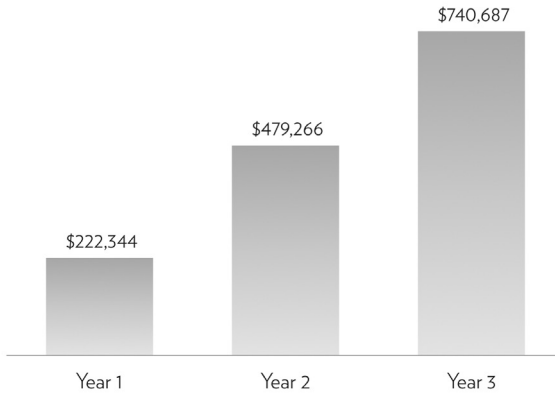


ROI Case Study: Salesforce Einstein Analytics

Shazam • ROI: 752%

Shazam deployed Salesforce Einstein Analytics to provide its employees with a user-friendly analytics tool, allowing for ad-hoc analysis. The company had relied on Excel, but found that they were not able to execute on advanced analytics. Shazam needed a solution that would help increase efficiency and reduce requests for reports from the core analytics team. Nucleus found that Salesforce Einstein Analytics helped increase productivity for the chief revenue officer (CRO), the sales VPs, and the analytics team. In addition, the deployment helped Shazam maintain clean data for improved customer segmentation and more effective sales efforts.

CUMULATIVE NET BENEFIT



THE COMPANY

Shazam is one of the most popular apps of all time, used by hundreds of millions of people each month to connect to the world around them. The app has been downloaded over 1 billion times, in over 190 countries, and users Shazam over 20 million times each day.

KEY BENEFIT AREAS

The Salesforce Einstein Analytics deployment drove increased productivity for Shazam, while simultaneously providing them with more advanced functionality. As a result, the company experienced benefits including:

- **Increased employee productivity.** The Salesforce Einstein Analytics users have been able to experience increased productivity because the solution is intuitive and offers ad-hoc analysis capabilities with a clean, centralized data repository. As a result, Sales VPs do not have to ask analysts to run reports for them and they are able to quickly find the metrics they need. In addition, the CRO has been able to increase his productivity by 30 minutes per week.
- **Improved data quality.** Prior to Salesforce Einstein Analytics, analytics users spent an average of 15 percent

of their time cleaning data because the information had to be collected and analyzed using Excel. Today, this data cleansing period has been eliminated and users can spend more time analyzing instead of spending hours on tedious data cleansing.

- **Improved customer segmentation.** With Salesforce Einstein Analytics, Shazam is able to obtain more detailed information on its customers. For example, the company can identify more granular patterns by region, allowing their sales teams to more accurately target their customer base.
- **Improved analyst retention.** Salesforce Einstein Analytics has removed much of the tedious report building from the hands of the analyst team. Therefore, the analysts can spend more time doing advanced analytics that better satisfies their skill set, encouraging them to remain at the company for a longer period of time.

BEST PRACTICES

Prior to implementing Salesforce Einstein Analytics, Shazam had inconsistencies in approximately half of their account data. This is not uncommon for a CRM system, because it is extremely difficult to maintain consistency when inputting account contact information. For example, one salesperson may enter “Nucleus Research,” and another salesperson may enter “Nucleus Research LLC.” Neither of these are wrong, but the salespeople have inadvertently created duplicate records for “Nucleus Research.” Before going live with Salesforce Einstein Analytics, the lead on the implementation spent considerable time cleaning the data to remove any duplicates or inaccuracies. In addition, the team set up new guidelines for entering data that has allowed them to maintain an accuracy level of approximately 90 percent. A 90 percent accuracy level for CRM data is strong and has allowed Shazam to more easily use the data for their analyses.

SAP

BusinessObjects Enterprise remains the major enterprise-scale product that is suitable for large businesses interested in a full stack of SAP products from the HANA database to the end user modules. It provides a strong core for traditional and ad hoc BI reporting.

Customers surveyed noted that the full BI stack from SAP required sophisticated IT support and was fairly expensive compared to other solutions. While the more lightweight products like Crystal Reports are very competitively priced, customers said that functionality and usability are not as robust as other market leaders, and that the product does not receive as much support from SAP as its other offerings.

SAP's products are mature, making them leaders in traditional IT-driven report generation. Customers commented that the back-end of the SAP stack handles data management well and that it is easy to import data from and integrate with Microsoft Office. The wide range of modules allow for functional flexibility for many use cases. Easily deployable point-solutions like Lumira and Crystal Reports are less complex and more economical than comparable software, but overall have less functionality and are more appropriate for simple use cases.

Usability remains a key weakness for SAP. Users report a steeper learning curve than other products with heavy reliance on coordination between IT, developers, and end users. Users need a lot of training during implementation to generate an effective return on investment, and the product is prone to incorrect setup issues. Implementation tends to take longer than competitors' products with a resultant lag on ROI. Users also noted governance issues due to the wide range of modules within the product suite that overlap in certain areas of functionality.

Support continues to stand out as the greatest complaint from customers with a lack of effective online resources to aid with training. In addition, maintenance can be expensive.

SAP offerings are best suited for large-scale projects. SAP is trying to simplify their product stack and improve usability through interface updates, but we do not expect these factors to keep pace with the market, especially due to continued support issues.

Overall, SAP's analytics products work best as a full business deployment

where they can interact smoothly with each other and with SAP's data management, CPM, or other products. With the trend towards self-service point solutions and a varied technology stack though, SAP will have difficulty rising higher than its current level as a viable option for some use cases.

SAS

Enterprise deployments of SAS BI consist of modules for traditional BI, Microsoft Office embedded BI, visual reporting, data discovery, advanced analytics, text mining, and others.

The SAS Viya platform, which is meant to complement the most recent release of SAS 9.4, functions as a cloud-based hub for on-premises and cloud deployments of SAS Analytics. The goal is to provide users with a centralized method to access their various SAS Analytics applications and to assist the integration of SAS BI with other common BI tools.

SAS is often implemented by larger organizations because of its ability to manage complex data and the breadth of its functionality. It is less appropriate for SMBs with limited use cases or inexperienced IT support. Many customers purchased SAS analytics because they already had SAS products deployed and found that adding new modules was less complicated than changing vendors.

Users feel that the standard BI and ad hoc reporting are excellent, and that the software can handle large amounts of data with ease. The prevalence of the SAS coding language in universities and similarities to R make it relatively simple to use for advanced users. Customers report that support is excellent, which is the main reason customers choose SAS over R, an open-source language with no support other than online resources. SAS has worked hard to maintain a positive customer experience across its large user base.

Despite good support and prevalence in learner communities, it is a very complex set of products with a steep learning curve. SMBs may find this learning curve unmanageable and in some cases customers reported that they abandoned the project in favor of lightweight tools more oriented toward their limited use cases. Deployments can be complex and take significant time and planning to execute properly.

Users report that, while the backend data architecture and all-around horsepower of the solution is excellent, the front end is less robust. Not all browsers are supported, there lacks a strong mobile application, and visualizations are lacking.

SAS will continue to be a market leader in specific verticals and use cases, outpacing other players in data science and advanced analytics. SAS's investment in Viya is key in their relevance in the growing multi-product, cloud-based BI stacks for many customers and will make them a strong option for large businesses that have sufficient resources to dedicate to the project.

Sisense

Sisense competes with other data discovery vendors and is focused on the Power User model. With that said, Sisense emphasizes its competency as an end-to-end vendor designed to simplify BI stack complexity with scalable enterprise tools. Customers also reported that Sisense eliminated the expense of a data warehouse.

Customers said that the product was easy to use, deploy, and customize with minimal cost of ownership. Dashboarding and embedding were simple to use, and users reported that the comprehensive offering made it an attractive option. Customers also said that the technical support was excellent, and that internal IT intervention was rarely needed. They said that Sisense had an excellent roadmap and was constantly innovating.

Although Sisense provides functionality for all aspects of BI and analytics, some users have experienced minor issues customizing basic report features. Users have also noted minor issues with collaborative tools and report sharing. Mac users have encountered problems not present on the Windows operating system.

Sisense offers an end-to-end BI solution with across the board functionality and high usability. It continues to improve its product through strong investment, and with future enhancements to functionality, it will become more and more viable as a replacement for a range of point solutions. We expect that Sisense will maintain its strong market position through product innovations, but that as functionality becomes more advanced, deployments will become trickier and usability will decline relative to the market.

Tableau

Tableau's continued success is due to its intuitive usability that achieves considerable functionality and integrates well with external solutions. Users uniformly told us that Tableau's learning options were excellent with online documentation, webinars, and classroom training. Users also liked the robust

community, and the universality of the product ensures that companies will find it easier to get developers already fluent in Tableau. Tableau's offerings are highly intuitive and scalable as their businesses grow. Customers related that the visualizations, mobile interface, and geolocation capabilities were highpoints of the product.

Even though Tableau excels at its core product capabilities, it lacks the full functionality needed for enterprise BI. Standard and ad hoc reporting does not compare well with enterprise scale products from other vendors, and users consistently reported that Tableau slows when working with big data sets. As noted above, this leads many customers to use Tableau for front-end BI processes while leaving the heavy lifting or advanced data prep to other products. Tableau also does not have robust tools for advanced or predictive analytics.

Some customers with smaller, more homogenous data sets are able to perform full BI reporting within Tableau, but beyond those circumstances, it can encounter performance issues and users said that customizing reports for advanced use cases can quickly become complicated. Customers also reported that Tableau can be difficult to white-label.

As a new generation of analytics users are trained both at universities and on the job, Tableau's ubiquity will keep it a preferred choice, though it may operate alongside an increasingly diverse number of other analytics programs better suited to tasks like data blending, traditional BI, or advanced analytics.

TIBCO

TIBCO's flagship product, Spotfire, provides data discovery tools and predictive analytics and enables business users to visualize and analyze their data without IT support.

TIBCO Jaspersoft is a cost-effective business intelligence suite that delivers analytics as an embeddable platform. Jaspersoft's modular architecture solution give users the flexibility needed to deploy in any environment. Other modules focus on integration, data management, collaboration, and web applications. TIBCO has been a major player in the BI market, but its popularity has waned in the past few years as smaller, more disruptive companies have challenged vendors to solidify their user base in an environment of changing business requirements.

Customers said that TIBCO was priced well to compete with other solutions and the product has overall reasonable performance and scalability. It

has good predictive analytics functionality compared to some other vendors.

Customers reported that the sales team was inconsistent, promising more than could be delivered, had confusing licensing, and inadequate customer support. Users uniformly noted that it was difficult to escalate issues up the support ladder for successful resolution. Customers surveyed did not believe that TIBCO had developed a roadmap that would enhance the product line and some voiced confusion how their business needs would fit into the diverse TIBCO product landscape.

Yellowfin

As an Australian-based company, Yellowfin has less presence in the North American or EMEA regions than other vendors, although it has recently expanded its U.S. support and operations. Because of the all-around capabilities of its platform, it competes with a wide range of other vendors and is flexible for large-scale and small-scale deployments.

Customers found that the Yellowfin platform was straightforward and very easy to use, partially attributable to excellent online resources and tutorials. Users commented on the strength of dashboarding, embedding, and collaboration, which indicates that Yellowfin executes well on the product's areas of focus. Customers also reported strong support and a positive sales experience.

Yellowfin's biggest weakness is a lack of robust ETL and data management processes. Users report that the platform does not deal with unstructured data as well as other vendors. The company has acknowledged this issue and is making improvements in this area, but customers still feel that Yellowfin is behind some of the competition. Given the importance of data integration capabilities, we expect improvements in this area to boost Yellowfin's overall functionality in the coming year.

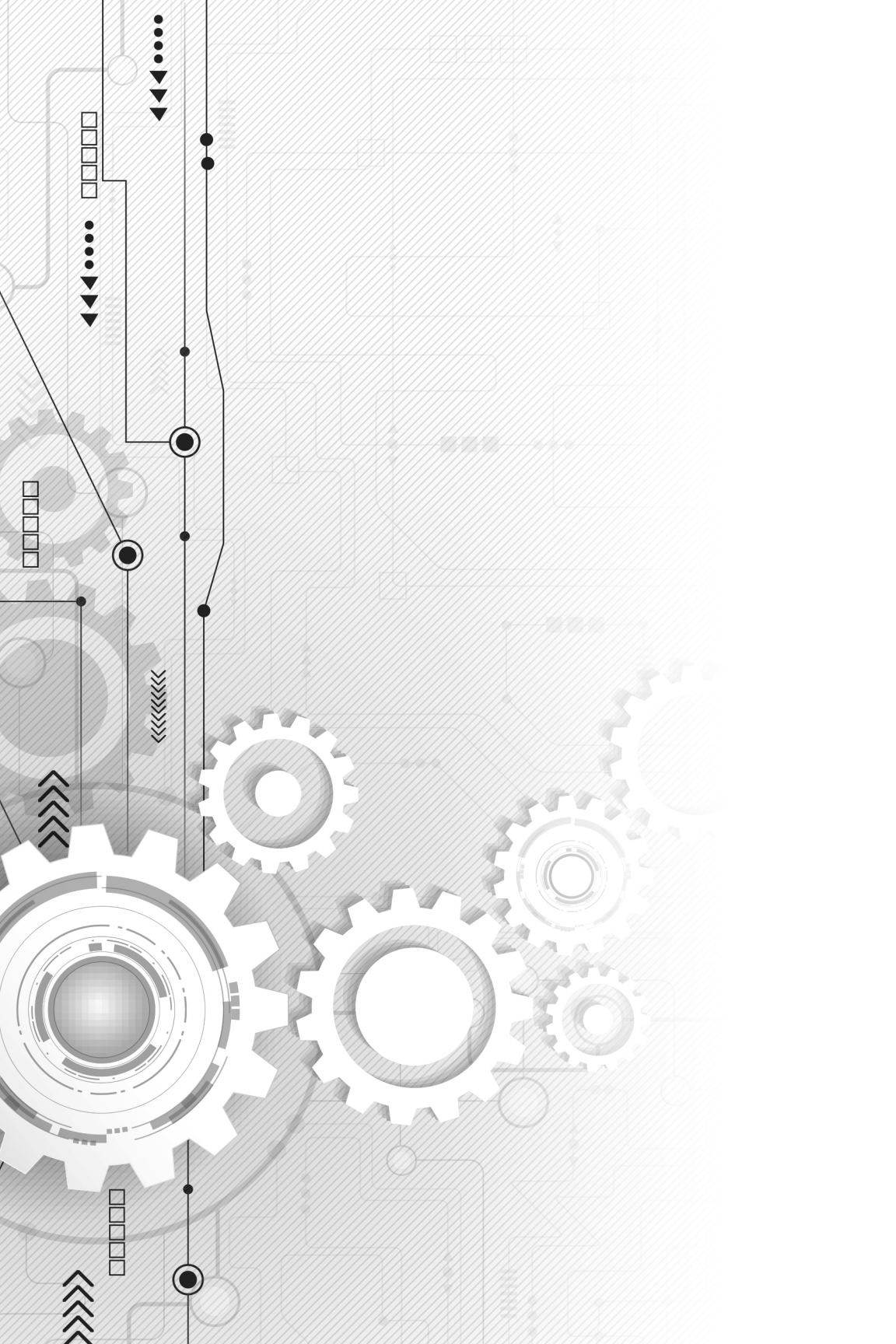
Yellowfin offers a clear, single-interface product that is beneficial for users overloaded with a complicated BI stack or an excess of modularized solutions. Moving forward, we see its improvements to functionality making the product a viable option for SMBs and large businesses that want a straightforward BI tool for traditional analytics use cases.

Zoomdata

Zoomdata delivers fast big data visual analytics very well. Its ability to

connect to multiple data sources with real-time, streaming analysis is its primary strength. Customers reported that the product was very easy to use, had good visualizations and embedded capabilities, and that it was an effective way to process big data sets. Deployments were reported as smooth and relatively quick.

Zoomdata is a newer vendor still establishing its user base and lacks the maturity of many competitors. Its product is missing the overall functionality of a full BI solution, and some customers reported issues with data integration and ingestion. Customers also said that Zoomdata should improve its training and clarify its licensing structure, which was at times confusing.



CHAPTER 11

CORPORATE PERFORMANCE MANAGEMENT

Corporate performance management (CPM) has long revolved around planning, budgeting, and forecasting core functionality, but companies are now focusing on other ways to differentiate themselves. We found that most CPM products have similar functionality when it comes to core components. Where companies differ is in their ability to seamlessly integrate with other business applications and their ease of usability.

We analyzed the market of CPM products, evaluating companies based on their relative usability and functionality. Usability is a key factor for CPM products. Business users in the finance department prefer minimal involvement from IT, and are reluctant to learn a drastically new system.

This paradigm has led to the development of two different types of CPM products: those that are tightly integrated with Excel and those that try to re-imagine CPM through a different interface. Since many customers prefer an Excel-like interface, the value of a solution depends on how closely it matches user preferences and thus, how willing users are to adopt it. The functionality of a product is irrelevant if the client doesn't use it.

All companies are now offering cloud deployment options, with some companies exclusively offering cloud deployments with the SaaS subscription model. An SaaS deployment is a logical solution for a finance department because it is cost effective by reducing the amount of internal IT support needed to maintain the product. In the case of SaaS subscriptions, the vendor does most or all of the heavy lifting on the back end.

We have identified three critical factors that a CPM application needs;

these include embedded analytics, ERP integration, and flexible deployment. We have determined that simple and smooth integration is a growing concern for users, not just with CPM, but across the entire business operation. General data management is essential, and CPM software is increasingly becoming a hub where data pipelines can be directed and managed. The CPM market is relatively mature. If vendors want to differentiate themselves in the coming years, they must build on these three core components to offer sustainable solutions for customers.



Corporate Performance Measurement Value Matrix

Dot indicates current position. Arrow indicates trend in 2018 relative to others in the market.

Adaptive Insights

Adaptive Insights offers an exclusively cloud CPM and business intelligence (BI) platform as a SaaS solution. Adaptive appeals to the growing market trend of moving to the cloud, highlighting low TCO, limited IT, and deployment speed as key drivers of ROI.

Adaptive's product suite features several applications: Planning, for planning, budgeting and forecasting (PBF) with an Excel-like interface; Consolidation, for close management; Discovery, for interactive scorecards and what-if modeling; Reporting, for drag-and-drop visual analytics and other reports which can be generated through Microsoft Office; and Integration, providing data connection to other enterprise applications like ERP, CRM, and data warehousing.

Adaptive's recent updates from September 2016 to the present demonstrate their recent improvements. Adaptive Insights Release 2016.3, released in September 2016, included investment in usability. The Excel Interface for Planning provides users with the ability to plan within an Excel environment integrated with online Adaptive Planning. Improvements were made to model building so that the finance department can independently maintain their models to adapt as business conditions change for scenario planning. The release also included new visualization types for analytical dashboards, including a finance-specific waterfall chart, and to customer-managed integration.

In the January 2017 release of 2017.1, Adaptive introduced the Visual Model Overview, which provides a visual representation of model dependencies, and Process Guide, which streamlines the identification of relevant data for tasks within the interface. Both changes were aimed at boosting ease-of-use and increasing user participation. Adaptive Insights also released Adaptive Integration enhancements allowing customers to create more intensive plans and reports in NetSuite. Customers can import an expanded set of NetSuite dimensions or segments and have greater capabilities within NetSuite's custom dimensions.

In May 2017, Adaptive Insights Release 2017.2, includes new interactive dashboards to enable self-service creation and personalization. New timescale capabilities were introduced for businesses that require custom time modeling. The release also focused on improving scalability for large enterprises and linking related data across sources.

Anaplan

Anaplan's CPM platform focuses heavily on a variety of applications to satisfy specific customer needs and is completely cloud-based. It features an "App Hub" where users can use, modify, or create new apps to suit their data picture. The App Hub allows for dashboard customization and role-based functionality, boosting user adoption and overall relevance to a user's daily workflow.

The Anaplan platform is run on an in-memory engine, called Hyperblock. Its consolidation function incorporates significant data management elements, keeping data clean and hierarchically organized. The platform is accessible on any browser, standard or mobile.

Anaplan's planning applications have been integrated with application lifecycle management, a form of data management that tracks and consolidates information about applications. The company has made improvements to its collaboration portal, and since the beginning of 2016, 122 new apps have been published in its App Hub.

Axiom Software

The Axiom Software CPM suite is broken into Strategic Planning, Budgeting and Forecasting, Reporting and Analytics, Financial Close and Consolidation, and Profitability and Cost Management. The product is offered on-premises or as a SaaS deployment. Axiom cloud integrators automate extract, transform, and load (ETL) and sync with almost any exterior data source.

Recently, Axiom has focused on industry specific improvements. It acquired Retikal LLC in April 2017, a company focused on CPM for higher education institutions. In January 2017, it acquired KREG Information Systems, who provide industry CPM for healthcare providers.

Its recent software version, Axiom'16, focused on improving user experience and productivity, with greater collaborative and guided workflow functions. New design tools were incorporated to make report generation easier and more visually oriented.

BOARD International

BOARD's CPM product is offered as an on-premises or SaaS deployment.

All of BOARD's CPM capabilities—reporting, dashboarding, data discovering functionalities, and planning, score carding and simulation—are based on its single data layer platform with one user interface. Unlike some products, it is not modular with different interfaces for different user groups or functions. This feature works best for smaller companies or companies looking for a single centralized application interface.

Much of BOARD's focus is on customers coming from pure Excel or previously using large name vendors for their CPM needs. It specializes in helping customers build out their first applications as well, appealing to companies new to CPM. Its product includes predictive analytics, what-if scenario generators, and self-service reporting, all of which are rapidly becoming industry standards. In terms of usability, Board focuses on drag-and-drop visualization tools and tight integration with Microsoft Office.

In BOARD's recent 10.1 release, it has focused on cognitive functions with several new features: workflow engine, search generated analytics, automated narration, and in-context collaboration, among other UI updates. Users can search for data through natural language recognition and visually link this data within the Board interface to improve understanding across departments.

CCH Tagetik

CCH Tagetik has been providing CPM products since 2005 and in April 2017 was acquired by Wolters Kluwer, a global IT conglomerate. Its CPM suite is available as a SaaS, private cloud, and on-premises deployment.

We expect CCH Tagetik to command an increasing market share with its greatly increased functionality and improved global reach.

Centage

Centage focuses on SMB deployments for its Budget Maestro product. Budget Maestro provides core PBF, balance sheet, cash flow, and what-if functionality. The product is easy to deploy in a small-scale environment, but is not suited for larger businesses or complicated accounting scenarios.

Centage currently provides the core functionality common to all CPM products. It appeals to a specific portion of the market with relatively limited CPM needs looking for a low-hassle, quick-deploy solution, many of them migrating from Excel. Budget Maestro is available as an on-premises, private

cloud, and SaaS deployment, crucial for small businesses trying to limit hardware and IT costs as they expand.

In its most recent version update, Centage added greater functionality to its forecasting and custom scenario planning features. It has added new modules to the interface such as Revenue and Personnel.

Host Analytics

Host Analytics' CPM platform consists of five modular applications: planning, consolidation, modeling, reporting, and analytics. Planning comprises the traditional PBF functions through an Excel-like interface, with the goal of promoting user adoption. "What-if" and scenario analysis is contained within the modeling application.

Host Analytics released its summer 2016 update that included enhanced reporting on workforce planning data and improvements to its cloud scheduler, among other things. The addition of workforce planning and reporting and the crossover into HCM territory has been a next step in several CPM vendors, marking a new way in which companies are trying to differentiate themselves.

As a company focused solely on CPM, Host Analytics offers a strong track record and consistent performance across our market overview reports.



ROI Case Study: Host Analytics

Software Company • ROI: 95%

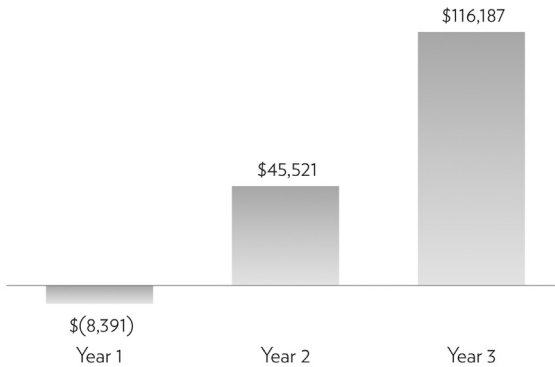
A mid-sized software company switched from Adaptive Insights to Host Analytics CPM solution, doubling their ROI. Usability issues were holding the company's finance department back, and an emphasis on growth through acquisitions meant that strong reporting and consolidation software was needed to handle such complex projects. The company turned to Host Analytics and saved six days per month, on average, for reporting and error correction.

THE COMPANY

The company provides data software for mid- to

large-sized businesses. The company has been expanding both organically and inorganically over the past few years and is ramping efforts for more aggressive growth through acquisitions.

CUMULATIVE NET BENEFIT



KEY BENEFIT AREAS

The overall greater usability of Host Analytics boosted user adoption and made reporting easier for both everyday financial activities and major events like acquisitions. Benefits include:

- **Improved monthly consolidation.** Every month the accounting team would pull together monthly financial information to run reports. Host Analytics was much faster and smoother than the previous system, saving three days of employee time.
- **Improved ad-hoc reporting.** About five to ten times per month, other employees in the company would request ad-hoc reports around specific financial information. Host Analytics facilitated much faster data collection and report generation, saving over two and a half days of employee time per month on such reports.
- **Improved data management.** All financial information is automatically loaded into Host Analytics, which serves as a centralized single-source-of-truth.

The program led to greater confidence in data accuracy, easier collaboration between and insight into individual departments, and greater data governance.

When it came to acquisitions, it was much easier to integrate financial information from a variety of legal entities into the Host system. Whereas the company previously experienced routine issues with versioning and errors with static data, Host has led to greater confidence in the data and fewer email chains of spreadsheets between the finance department and the executive team.

BEST PRACTICES

Companies should not underestimate the benefits to be obtained from small deployments like this one. Often, companies are worried about large-scale software projects and may miss the value that a low-cost deployment can bring to an individual department. With only a few users, the company is not saving vast amounts of money per year, but it is achieving a respectably high positive return on investment.

Moreover, the accounting software has influenced other branches of the business, too. Individual departments and the executive team both benefit from greater insight into financial information and a greater ability to leverage the CPM solution's benefits for their own departmental goals.

Usability was the final piece of the puzzle for this customer. With many new people in the accounting department, high user adoption of the CPM system was paramount, and the company felt that its previous system would not be able to keep up with its financial growth and goals if it lacked usability. The company has been able to expand the number of users on the software and has also increased the range of uses within the business outside of just the monthly consolidation efforts of the previous system, all while requiring almost no explicit user training.

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IBM

IBM's CPM offering consists of several branches including Financial Planning and Analysis, Profitability Modeling and Analysis, Performance Management and Reporting, and Financial Close and Regulatory Reporting. Its PBF functionality within Planning Analytics features predictive and constraint capabilities. Although there is a huge customer base still using its product on-premises, two years ago it was made available as a hybrid and SaaS subscription deployment, both for the IBM public cloud (Softlayer) and privately hosted cloud. IBM does offer a program to help customers move between deployment formats.

Like many other IBM products, Watson Analytics is included, allowing for causal understanding and more dynamic "what if" functionality, a critical function for PBF applications. IBM's Cognos Analytics is an optional integration for the product. On top of the CPM suite, there are many partner apps that can provide additional functionality.

Recent changes to its CPM products focus both on personal functionality and usability, empowering a greater diversity of individual users with more tools. On the functionality side, the product now has better "self-service," personal scenario planning, and data hierarchies to better explore new data. On the usability side, the product has tighter Excel integration. IBM has attempted to keep the comfort of Excel with the improved power of the IBM engine. The Workspace web platform, available on web browser, PC, and mobile, also allows dashboards for customizable data layouts.

Infor

Infor's product model revolves around its industry-specific cloud suites, which includes its CPM offering. Its product is completely cloud-based. It offers 16 pre-configured industry suites such as automotive, healthcare, and business. Its CPM modules cover all major areas of CPM, including workforce management. The suite also has a dedicated "risk and compliance" module integrated with industry standards. While this functionality is not completely unique to Infor, it is a dedicated separate application within the suite and is an upshot of industry-specific dedication.

Because Infor's CPM product is integrated within the larger cloud suite, the product has innately strong data management and consolidation capabilities. Changes made in other branches of the business, such as supply chain,

will automatically be updated within the CPM application.

Infor recently acquired Birst, which brings tools for ETL, operational reports, dashboards, semantic understanding, visualization, smart discovery, and data blending to form an end-to-end BI suite in the cloud.

insightsoftware.com

insightsoftware.com's CPM suite, Hubble, is a holistic performance management solution equipped with reporting, analytics, and planning. Equipped with pre-built templates, multi-data sourcing capabilities and process automation functionality, Hubble provides organizations with data management and analytics capabilities across multiple departments, such as finance, operations, and human resources.

Hubble is built to tap into underlying ERP and CRM systems to synchronize data across a business. Inherent data management functionality is an increasingly common feature with CPM products and is an attractive feature for companies with complicated data processes already in place before adding or upgrading a CPM suite. Hubble's focus on ERP integration is a unique feature that guides its CPM systems.

[Longview](https://longview.com)

Longview provides several enterprise products, including a CPM product suite, tax application, and analytics platform. Its CPM suite is broken into two main parts: Longview Close, which deals with financial results and reports; and Longview Plan, which deals with PBF functions. The CPM suite is integrated with its analytics and tax applications, helping it fulfill several BI roles. It currently offers both cloud and on-premises deployment options, although recently it has focused more heavily on improving its cloud offering.

In recent months, Longview has focused its updates on improving the user experience. The addition of Arcplan's BI capabilities to its suite has also made its product suite more well-rounded. Its analytics platform has data connectors to most major data warehousing sources.

[Oracle](https://oracle.com)

Oracle's CPM product, Hyperion, is broken into several modules, which all link together in the broader CPM product. It is available on-premises or

cloud. Capital Asset Planning automates the planning of capital assets and expenses. Project Financial Planning helps plan, budget, and forecast contract, capital, and indirect projects. Public Sector Planning and Budgeting is designed for healthcare, education, or other public-sector institutions to simplify budget preparation, review, publication, and disclosure. Workforce Planning allows for financial planning and data codification for workforce decisions such as salary and benefit planning, as well as other finance-related HCM information. Strategic Finance offers specific “what-if” scenario functions. Planning and Budgeting Cloud offers traditional PBF tools in pared down dashboards.

Prophix

Prophix offers a mid-market product suite with flexible integration options. Prophix’s CPM suite is sold as a total package but can be implemented in parts. Its application can focus on one business process at the outset, such as budgeting, and shift down the road to include other processes without adjusting the subscription terms. These capabilities appeal to growing companies that are unsure of future needs but need certain CPM functionality immediately. Its products are also priced below many larger vendors.

In recent months, Prophix has focused on improving its functionality. With the release of the Prophix Version 12 in August 2016, it has added improvements to its BI application such as visual analytics, interactive charts, and more detailed planning schedules.

QPR

QPR Software’s CPM suite is broken into four parts, which are significantly different from other common CPM suite application divisions. Each application can be purchased separately or as a suite. The suite is available as an on-premises or cloud deployment. The EnterpriseArchitect includes modeling, designing, analyzing, and measuring business strategies. The ProcessDesigner allows users to generate business process models and efficiency improvements. QPR Metrics provides scorecard and performance monitoring capabilities. The ProcessAnalyzer identifies inefficient use of resources in specific business processes to fix bottlenecks and identify root causes.

SAP

SAP offers two CPM products, BusinessObjects Planning and Consolidation, and BusinessObjects Cloud. Both products are built on the SAP S/4HANA in-memory engine. SAP's approach to CPM revolves around a "top down" or "middle out" strategy to eliminate the burden of plan generation from individual users and create a business-wide interface. This strategy aims at synchronizing planning functionality between operations, finance, corporate, and strategic planning groups.

While many of the functions of both products overlap for basic features like PBF, mobile reporting, and consolidation, BusinessObjects Cloud offers several additional features, including: embedded real-time analytics that work in the background of other applications, embedded collaboration tools within the application interface, an "events console" that synchronizes meetings and tasks, and integration with on-premises BusinessObjects.

SAP also offers the Digital Boardroom, a dashboard-like product designed for the presentation and examination of CPM data in meetings and on the fly. Recently, the CPM add-in version 10.0 has added drag-and-drop report functionality and built on previous integration with Microsoft Office. SAP has focused on improving usability for its products through consistent SaaS deployments and greater interdepartmental connectivity.

SAS

SAS offers a variety of products that each address different aspects of the CPM customer's needs. Its Financial Management product supports planning, budgeting, and consolidation. The forecasting component is branched off into its Forecast Server and Forecast Studio. The Strategy Management product makes up the broader picture of enterprise planning and goal setting, and has recently been upgraded for better integration with SAS Visual Analytics.

Recently, SAS has improved its functionality across several products with features such as additional forecasting options, time series analysis, and data integration across its products. It has also made some adjustments to usability, like improvements to mobile reporting and Microsoft Office compatibility.

Vena Solutions

Vena delivers a completely SaaS solution for budgeting, planning, revenue forecasting and reporting. Vena is mobile compatible and fully integrated with Microsoft Office 365 Online and desktop.

The company's software combines Microsoft Excel usability with a centralized in-memory database and workflow, reporting, and analytics functions to automate planning, budgeting, and forecasting processes. The CPM suite also includes standard reporting, modeling, and regulatory reporting capabilities, as well as predictive analytics. Vena's web dashboard allows for personalized dashboard configuration for different users, and the product has been expanded to uses beyond finance. This development matches the trend of other solutions in branching out to HCM and data management integration.

To accelerate time to value for its users, Vena also offers a series of best practice templates for different types of planning, reporting, and forecasting. Vena Exchange is a marketplace for customers to access prebuilt templates that help customers explore other business use cases and highlights a collection of templates across different industries, departments, and business application areas. As a result, customers have the option to utilize best practice suggestions without any custom coding.

Vena also offers web, mobile, and desktop dashboards to deliver high impact visual depictions of its data. Now Vena customers have an intuitive way of seeing their current status and trends at a glance.



CHAPTER 12

MARKETING AUTOMATION

With its process automation capabilities and low total cost of ownership, more companies are recognizing the ROI potential of marketing automation software and considering it a key component to their overall growth strategy. Marketing automation is one of the fastest growing markets in the enterprise software space, and competition is becoming increasingly steep as vendors expand usability and functionality.

Marketing automation has become a staple of the enterprise software toolset, automating processes to make marketers more efficient, orchestrating marketing campaigns that target customers with personalized messaging across channels, and equipping marketers with the intelligence to make more data-driven decisions. This leads to direct and indirect benefits that affect ROI, including avoided costs, increased revenue, and productivity gains. Marketing automation software tends to be more cost effective than other software investments, with an average TCO which is 55 percent lower than that of the ECM deployments, 47 percent lower than that of the ERP deployments, and 28 percent lower than that of the HCM deployments that we have evaluated.

Based on our conversations with customers, the top priority when selecting a marketing automation solution is its ability to meet functionality needs as companies scale. We found that the market is responding to their needs and expectations. The key functional areas in which vendors are investing include marketing intelligence, a unified view of the customer, out-of-the-box integrations and extensibility, micro-marketing and account-based marketing (ABM) toolsets, and business expansion.



Marketing Automation Value Matrix

Dot indicates current position. Arrow indicates trend in 2018 relative to others in the market.

ActiveCampaign

ActiveCampaign is an all-in-one marketing platform with e-mail marketing, marketing automation, sales automation, and CRM functionality. Marketing automation capabilities include campaign management, lead management, social, mobile, and reporting. ActiveCampaign caters to the SMB sector across all industry verticals, primarily serving companies with 20 or fewer employees. The vendor's lowest offering includes marketing automation functionality, mid-tier includes marketing automation, sales automation, and CRM, and the enterprise package includes all features.

ActiveCampaign is an easy to use, highly cost-effective alternative to competing SMB solutions. Due to its low TCO, lack of setup fees, and ease of implementation, its customers tend to experience short payback periods.

ActiveCampaign struggles to gain the visibility it needs to compete with the big-name SMB players. The vendor will have to improve visibility in order to win customers and fund research and development to keep them from being overtaken by vendors with larger budgets.

ActiveCampaign provides a good starting point for companies seeking core capabilities with a limited budget, when a high degree of functionality is not needed. We expect ActiveCampaign will keep pace with the market in terms of functionality growth, but it will likely fall behind in terms of usability.

Act-On

Act-On Software is an open-architecture marketing automation and e-mail marketing solution that consists of inbound and outbound marketing tools, automation, reports and analytics, CRM, app integration, account-based marketing, and data capabilities. Act-On caters to business to business (B2B), midmarket companies, building brand awareness, driving demand, and improving customer relationships. Act-On Anywhere allows users to access Act-On from various applications including enterprise software and social platforms.



Act-On provides significant breadth in terms of functionality, at a reasonable cost. Act-On delivers a solution which tends to be more cost-effective than enterprise-grade solutions. Act-On also offers discounts to non-profits.

Customers with whom we spoke say Act-On excels in delivering an intuitive UI and UX, is easy to deploy, and requires little to no maintenance. Customers cited the vendor's lack of campaign syncing with CRM, and the difficulty of building more complex, multi-touch campaigns as primary reasons.

Act-On suits companies with broad functionality needs that are looking for something relatively cost effective. Act-On has made minor improvements to the usability of its solution, but we expect it will fall slightly behind the market in terms of usability growth over the near future.

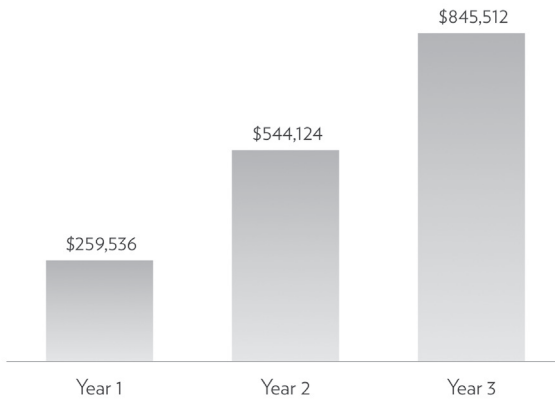


ROI Case Study: Act-On

Bisco Industries • ROI: 1283%

Bisco Industries deployed Act-On to replace point solutions with an automated, integrated marketing solution that enabled it to attribute revenue directly to marketing efforts. We found Act-On enabled the company to improve the effectiveness and productivity of marketers and developers, avoid costs, and increase revenue by over \$120k per year.

CUMULATIVE NET BENEFIT



THE COMPANY

Bisco Industries is a distributor and manufacturer of electronic components, hardware, and fasteners used for production in the aerospace, communications, computer, fabrication, industrial equipment, instrumentation, marine, and military industries. Bisco has 48 locations across North America and plans to expand overseas. Its careful management of inventory has enabled it to keep costs low for its customers.

KEY BENEFIT AREAS

We assessed the direct and indirect benefits associated with Bisco Industries' implementation of Act-On and found

that the following benefits contributed to its positive ROI: Increased revenue. Bisco's marketing department was able to attribute revenue directly to Act-On as soon as it launched its first test campaign. After implementing Act-On, Bisco increased monthly revenue by over \$10k on average.

- **Avoided costs.** Act-On increased the marketing department's output. To do the same amount of work it does now with Act-On, Bisco estimates it would need to add at least two or three full-time, entry-level marketers to its staff. Avoiding additional hires saved Bisco over \$100k on an annualized basis.
- **Increased employee productivity.** Act-On increased the productivity of both marketers and developers through the automation of formerly time-consuming tasks. Marketers previously spent approximately six hours per month uploading and maintaining lists of target leads, for example. With Act-On, uploading these lists is automatic. Marketers also spent significantly more time developing landing pages, with Act-On decreasing the amount of time it took by 75 percent. Due to time savings like these, Bisco saved over \$72k annually across the entire marketing department. Developers' productivity improved with Act-On as well, due to the elimination of the need to perform manual data extraction for the marketing department, saving over \$4k annually.
- **Improved effectiveness of marketing.** Bisco's marketing department measures its effectiveness based on several KPIs, including the number of opportunities—i.e., quote requests—it generates and how many of those convert to sales. Act-On enabled the marketing department to improve upon those KPIs, the number of opportunities increasing by approximately four percent, and conversion rates increasing by approximately 1285 percent. The number of campaigns also increased by approximately 78 percent.

BEST PRACTICES

Bisco Industries' successful implementation was due to many factors, but the company says the greatest payoff came from the work it put in prior to signing. Bisco involved employees that were responsible for implementation right off the bat. Bisco's developers met with Act-On representatives, interfaced with the product, and took advantage of the free API access Act-On provides to ensure it would integrate with Bisco's systems. This helped avoid integration issues down the road, which can be costly and have a negative impact on ROI.

Other companies that plan to utilize internal resources to implement Act-On should consider taking a similarly proactive approach, fleshing out an implementation plan and ensuring that necessary integrations are possible. This will also help companies budget for, and allocate resources to, the implementation. Companies that plan to use implementation partners should still consider integration requirements upfront.

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Adobe Campaign

Adobe Campaign is a set of solutions that enable marketers to deliver personalized campaigns across channels. Adobe Campaign's functionality includes integrated customer profiling, cross-channel campaign orchestration, contextual e-mail marketing, and real-time interaction management. Adobe Campaign is part of Adobe Marketing Cloud.

Adobe Campaign is one of the most intuitive, highly capable campaign management solutions on the market. Marketers are likely to find Adobe Campaign's UI highly visual, with a modern design and intuitive workflow. Customers with whom we spoke lauded the product's functionality, due to its breadth of functionality and intelligence underpinning the solution.

Adobe Campaign tends to be one of the more intuitive, visual, easy to use solutions in the cloud. While some of Adobe Campaign's functionality is infused with intelligence from Adobe Sensei, customers must purchase Adobe Analytics to take advantage of the full range of advanced analytics,

predictive intelligence, cross-channel attribution, advanced segmentation, and the machine learning capabilities of Adobe. Adobe prices its Marketing Cloud Solutions on a per-server-call basis, so for companies that expect a significant number of transactions, Adobe may end up being less cost effective than some of its competitors.

While Adobe Campaign is not a good fit for companies looking for a plug-and-play solution, it suits companies with advanced marketing needs looking for an intuitive solution that renders significant returns over time. With its rapid growth and focus on intelligence and intuitive design, we predict Adobe Campaign will outpace the market in terms of its growth in usability and functionality.

[Bridgeline iapps Marketier](#)

Bridgeline's marketing automation solution integrates Web content management and marketing automation capabilities. Marketing functionality includes a drag-and-drop builder for landing pages and blogs, lead form creation with CRM integration, e-mail management, automation flows, audience segmentation, contact management, and personalization. Content management includes both website and microsite support, and functionality such as in-line content editing, search engine optimization (SEO), enterprise search, and flexible content templates. Bridgeline serves B2B and business to consumer (B2C) SMBs and enterprises alike and offers cloud-based and on-premises deployments that integrate with leading CRM platforms. Customers can purchase the Bridgeline Experience Manager Pro series, which bundles Marketing Automation with web content management (WCM) and Commerce.

Bridgeline holds a unique position in the market as one of the few providers with strong marketing automation, WCM, and commerce capabilities on one platform. Bridgeline also offers a unique degree of security to its customers—PCI Level 1 compliance—which, with its on-premises offering, makes it attractive to organizations with high-security needs. Bridgeline's WCM capabilities enable companies to build websites rapidly out of the box with prebuilt components, but can also scale to be more complex and enterprise-level. In terms of cost, Bridgeline allows an unlimited number of contacts and charges based on the number of e-mails sent. When compared to the big-name marketing automation solutions in the market, Bridgeline tends to be more cost effective for this reason.

Bridgeline's current product structure and messaging is confusing, and the company will need to devote resources to additional marketing efforts before it has more influence over the market.

Bridgeline serves customers looking for a highly secure, on-premises marketing automation solution, as well as those looking for a scalable cloud-based solution with sufficient breadth of functionality, on a unified platform. We expect that the vendor will slightly outpace the market in terms of functionality development and keep pace with the market in terms of usability.

CallidusCloud LeadRocket

LeadRocket is CallidusCloud's marketing automation solution focused on marketing and sales alignment, automating marketing processes and accelerating sales. While much of CallidusCloud is focused on tools for salespeople, LeadRocket is primarily used by marketers. LeadRocket has e-mail marketing functionality that enables marketers to develop personalized e-mail campaigns with segmentation, analytics, and reporting capabilities. LeadRocket also has lead generation functionality with a landing page builder and tracking. The solution's lead management functionality enables marketers to track and manage leads in real-time, with lead scoring, nurturing, and alerts. Sales acceleration functionality enables sales and marketing teams to automate personalized outreach. LeadRocket caters to businesses of all sizes.

In terms of usability, LeadRocket's UI is intuitive, its features and functionality are user friendly, and its campaign mapping feature is drag-and-drop and visually on par with some of the most expensive marketing automation solutions. Considering the breadth of its offerings, LeadRocket is reasonably priced and easy to implement. Marketers benefit from sales enablement functionality on top of marketing automation capabilities out of the box. Sales enablement functionality includes capabilities that would help sales run ground-level marketing campaigns. This equips marketers with the tools they need to implement micro-marketing right out of the box, which brings significant benefits in terms of improving ROI.

Catering to marketers and salespeople, LeadRocket is designed for business users. Advanced marketers and more technical users may find that it lacks depth in terms of functionality and analytic capabilities. Like other vendors with a broad set of product offerings, customers may have difficulty navigating through CallidusCloud's product suite, but recent rebranding shows the vendor's efforts to bring clarity to their offerings and increase visibility.

CallidusCloud is a good starting point when budgets are limited and usability is a higher priority than depth of functionality. Implementations tend to be quick and easy, and there are low barriers to adoption. LeadRocket can also scale to meet customers' growing needs. We expect that the vendor will slightly outpace the market in terms of functionality and keep pace in terms of usability.

Engagio

Engagio is an account-based marketing analytics and sales automation solution that integrates with CRM and marketing automation solutions to provide account-centric analytics and campaign management capabilities. Features include PlayMaker, which enables customers to orchestrate multi-step, cross-departmental strategies to target accounts; e-mail marketing; lead to account matching, which automatically attaches unconverted leads to accounts; and account-based reporting and analytics, which help customers understand which accounts have the greatest opportunity for growth. Engagio has an approach to targeting leads, which the vendor calls “account-based everything.” Instead of targeting leads that respond to a campaign, account-based everything targets specific accounts.

Engagio is one of the most intuitive, contemporary solutions on the market. Companies considering implementing ABM should first consider Engagio, as it is similar to ABM but cross-departmental and is designed around what naturally happens within organizations to land accounts. Engagio prices are based on the number of unique account owners—not on a per-seat basis—allowing an unlimited number of users.

Engagio is still working out the kinks in terms of functionality and product positioning. Like any new solution, Engagio will need to focus on differentiating itself in the market and increasing visibility.

Engagio provides a good starting point for companies seeking core capabilities with a limited budget and enables fast and less expensive adoption. We expect Engagio will continue to grow, especially in terms of functionality.

GetResponse

GetResponse is an online marketing platform with e-mail marketing, webinar marketing, landing page functionality, and marketing automation products. E-mail marketing has customization and personalization,

advanced segmentation, optimization, tracking, and testing capabilities. Webinar services enable users to create their own webinars from templates. Landing page capabilities enable users to create, customize, test, and publish templated landing pages. Marketing automation capabilities include workflow building, scoring and tagging, Web event tracking, cart abandonment tracking, and automation segmentation.

GetResponse delivers an easy-to-use, cost-effective solution that does not require sophisticated IT support. GetResponse has good functionality for its price point, including a complete webinar marketing solution that differentiates it from other solutions serving small businesses. GetResponse's e-mail marketing analytics is a positive attribute, delivering actionable insights for the entry-level marketer to use. Customers can check e-mail performance metrics nearer to real-time than many of its competitors and perform A/B testing and optimization from within the platform.

GetResponse lacks the functional depth required by more advanced users. GetResponse positions itself as a marketing platform, but it is still perceived by many as an e-mail marketing tool.

GetResponse offers a good starting point for companies seeking core capabilities with a limited budget, where a high degree of functionality is not required. GetResponse may move gain position in the market as it improves not only the breadth but also the depth of its entire product stack and encourages deployments beyond its e-mail marketing product. We do not see it keeping pace with the market in terms of growth in usability and functionality in the near future.

HubSpot Marketing

HubSpot Marketing is an all-in-one, inbound marketing solution catering to the SMB sector. The solution consists of marketing automation, e-mail marketing, campaign, content and lead management, Web development and hosting, search engine optimization, and social capabilities.

HubSpot offers all of the core marketing capabilities of its competitors, but distinguishes itself with its inbound marketing methodology; its easy to use Web, landing page, e-mail, and blog post designers; and a free version of every product in its portfolio. Unlike many competitors, HubSpot offers Web hosting capabilities as an add-on, enabling customers to run their website on



HubSpot's platform and manage it from a dashboard. HubSpot is also one of the few vendors offering a completely free version of its solution.

HubSpot has decided to limit itself to the SMB sector, and its functionality and usability appeals to a certain type of user. For SMBs that plan to scale relatively rapidly, HubSpot may not provide the most long-term solution. Very price-conscious customers drawn to HubSpot Marketing Free should be aware that its functionality is less robust than the paid version.

HubSpot Marketing is intuitive and customers experience some of the fastest implementation and adoption times. However, the solution is not designed for enterprises, and more advanced users may find HubSpot lacks the deep functionality they require. We expect HubSpot to outpace the market in terms of growth on both fronts.



ROI Case Study: HubSpot

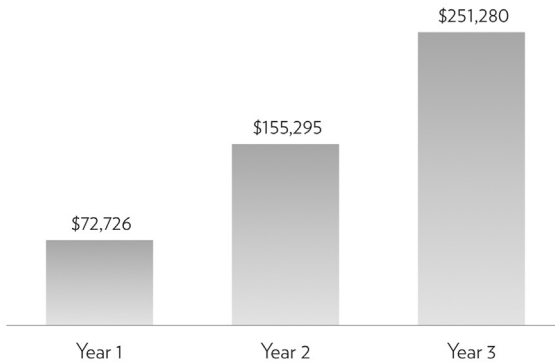
Accrosoft • ROI: 884%

Accrosoft deployed HubSpot Marketing to replace a disjointed system with a marketing automation solution that would increase productivity and drive future growth. We found the project enabled the company to avoid additional hires, improve tracking and reporting capabilities, as well as increase data capture, contacts and leads, and content output, increasing the overall productivity of marketing.

THE COMPANY

Accrosoft is a SaaS provider of enterprise software, offering software development and design, project management, risk mitigation, and UI and UX design. Its products include: Vacancy Filler, a cloud-based recruitment platform supported by recruitment specialists; Weduc, a communication and engagement platform for the education community including students, teachers, and family members; and Course Filler, which performs student application management.

CUMULATIVE NET BENEFIT



KEY BENEFIT AREAS

Implementing HubSpot Marketing enabled Accrosoft to significantly increase the productivity of marketing. We assessed the direct and indirect benefits associated with Accrosoft's implementation of HubSpot Marketing, and found that the following benefits contributed to this overall increase in productivity:

- **Avoided marketing staff.** If HubSpot Marketing were to be removed, Accrosoft's marketing team estimates it would need at least one more marketing team member at management level and two more Marketing Assistants to do the amount of work they do now.
- **Improved tracking and reporting capabilities.** HubSpot Marketing enabled Accrosoft's marketing team to track the activities of leads and measure the effectiveness of their marketing activities.
- **Increased data capture.** HubSpot Marketing enabled users to maintain up-to-date, complete profiles on customers, improving their ability to manage campaigns effectively.
- **Increased number of contacts and leads.** Within the first six months of implementing HubSpot Marketing, Accrosoft increased its contacts from 2000 to 9000.

Prior to implementation, Accrosoft generated about 10 inbound leads per year. With HubSpot Marketing, Accrosoft generates over 400 inbound leads per year.

- **Increased content output.** Overall, HubSpot Marketing significantly increased the amount of marketing content Accrosoft published. Prior to implementation, Accrosoft wrote two blogs per month—now, they release from six to eight—and publish 1000 percent more posts to social media.

BEST PRACTICES

Accrosoft initially launched HubSpot Marketing with the marketing and management teams, and only last year extended access to its sales teams. Accrosoft has started to see HubSpot Marketing bring significant benefit to sales since then. Based on Accrosoft's experience, other companies would be wise to introduce sales teams to HubSpot Marketing alongside marketing to reap the greatest returns.

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IBM Campaign

IBM Campaign is IBM's on-premises or hosted omnichannel marketing automation solution that enables sophisticated marketers to design, run, and analyze complex marketing campaigns and perform deep segmentation over multiple data sources to deliver personalized marketing messages across channels. Formerly Unica Campaign, IBM Campaign falls under IBM Watson Marketing. Among IBM Campaign's capabilities is the ability to use IBM Universal Data Interconnect to access data from multiple sources without the need to create proprietary data models and leverage advanced attribution and campaign reporting capabilities.

IBM Campaign is one of the few solutions on the market with enough functionality to suit customers with complex marketing requirements and advanced marketing teams, and it is also an attractive choice for customers seeking an on-premises marketing automation solution, as most competing solutions are cloud-only. IBM Campaign benefits from the advanced

cognitive capabilities of Watson and strong back-end data integrations which enable marketers to draw from many sources.

While IBM Campaign has invested in increasing its usability, it will never compromise its complex marketing functionality and advanced analytics to reach the same degree of usability as slimmer, less advanced marketing solutions. Customers report that the most successful implementations take place with the assistance of an implementation partner, or at the very least, extensive training. IBM Campaign can be used individually, but performs best when used in concert with other IBM Marketing Software solutions or integrated with IBM Marketing Cloud.

Customers with sophisticated marketing departments and high functionality needs benefit most from IBM Campaign. We expect IBM Campaign will continue to benefit from IBM's continued investment in driving innovation in artificial intelligence with its Watson-powered solutions.

IBM Marketing Cloud

IBM Marketing Cloud is a cloud-based digital marketing platform that is part of Watson Marketing. IBM Marketing Cloud aims to take the advanced machine learning capabilities of IBM Watson and apply them to marketing tools. Customers can purchase one of three IBM Marketing Cloud editions, as well as additional modules, including Journey Designer and Universal Behavior Exchange.

IBM Marketing Cloud suits customers looking for a digital marketing solution that is easy to use, with the cognitive capabilities of Watson. Watson can do things like improve campaign performance by manipulating campaigns that are already in progress based on changing customer responses, improve targeting and personalization by better understanding customer behavior, and drive conversion by increasing engagement and improving customer experiences.

With IBM's history of gaining functionality through acquisition, customers may be confused by its marketing product offerings. Sifting through IBM Marketing Cloud is not necessarily for the faint of heart.

With continuous investment in maintaining ease of use, we expect IBM Marketing Cloud will keep pace with the market in terms of usability, and outpace the market in terms of functionality growth due to the rapid pace of innovation surrounding Watson.

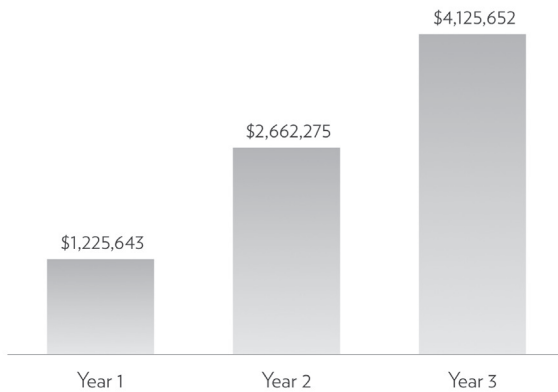


ROI Case Study: IBM Marketing Cloud

Supply.com • ROI: 1665%

Supply.com deployed IBM Marketing Cloud (formerly Silverpop) to enhance its digital marketing efforts. Nucleus found that the project allowed Supply.com to rapidly expand its business by identifying new income opportunities such as vendor promotions and new business-to-business customers while increasing sales force productivity by more than 20 percent. The project enabled Supply.com to achieve more than \$1 million in revenues from a single campaign.

CUMULATIVE NET BENEFIT



THE COMPANY

Located just outside of Atlanta, Supply.com is a full-service e-commerce and distribution company, selling plumbing and lighting fixtures to contractors, designers, plumbers, and homeowners across the United States. Using a unique combination of customer-focused technology tools and personalized customer support channels, the Supply.com team is rapidly revolutionizing the historically traditional plumbing supply industry.

KEY BENEFIT AREAS

Using IBM to support its e-mail marketing efforts allowed Supply.com to automate and streamline a large portion of its customer outreach and follow-up, freeing sales representatives to pursue hot leads that the system was able to identify and push for vendor promotions. Key benefits of the project include:

- **Increased productivity of sales representatives.** Supply.com was able to automate follow-up marketing and deadline tracking, allowing the sales team to spend 30 percent less time on administrative tasks and more time fielding inbound calls and pursuing leads.
- **Increased revenues from additional sales.** Supply.com was able to engage in targeted marketing campaigns and automated follow-up, leading to more wins.
- **Increased revenues from promotional campaigns.** Supply.com began running omnichannel marketing promotions where vendors paid for the product discounts.

The deployment also produced other benefits such as engaging both business-to-business and business-to-consumer prospects. The additional business-to-consumer marketing was a new line of revenue for Supply.com.

BEST PRACTICES

Supply.com found that the IBM Marketing Cloud supported a shift in the priorities of the sales department and expanded their pursuit of leads. In a single marketing campaign, Supply.com was able to reach thousands of potential customers as well as automate follow-up efforts. Instead of sales representatives manually e-mailing general contractors a reminder about an expiring price estimate, the solution automatically e-mails the potential customer with the relevant information pulled from the NetSuite CRM database. As a result, sales representatives can focus on prioritizing and pursuing leads, answering customer

replies to reminder e-mails, and fielding incoming calls from customers. Their focus can be on selling products rather than managing communications.

Additionally, Supply.com has also been able to open a new business line focused on promotions. With more targeted marketing campaigns and a larger sales department, Supply.com has been able to diversify into offering promotions to customers to drive sales. Supply.com has also been able to focus on engaging with vendors to sponsor the promotions.

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Infor Omni-Channel Campaign Management

Infor Omni-channel Campaign Management is part of the Infor CX Suite, and enables marketers to plan, execute, and monitor outbound, direct marketing campaigns across channels. Infor Omni-channel Campaign Management's capabilities include campaign management, e-mail marketing, customer targeting and segmentation, and database management. The solution also has Online Analytical Processing (OLAP), predictive analytic capabilities, and built-in closed-loop reporting.

Infor Omni-channel Campaign Management is well suited for enterprises with advanced marketing needs. Infor Omni-channel Campaign Management is also highly configurable and compliance-oriented, with the ability to be customized to meet the needs of the individual user with its open APIs and end-user-developed custom calculations, and offering system-wide opt-in and opt-out capabilities to enforce regulatory policies.

Infor is better known for its strengths in the supply chain and ERP spaces, as well as for its industry solutions. Certain aspects of the solution—like its configurability—are beneficial to the more advanced, but may make the solution less user friendly to the average marketer.

Infor's Omni-channel Campaign Management solution fits the needs of more advanced marketing departments, while remaining intuitive. We expect Infor Omni-channel Campaign Management to continue to outpace the market both in terms of functionality and usability growth, increasing its visibility in the marketing automation space.

[Infusionsoft](#)

Infusionsoft is an all-in-one marketing automation, CRM, and e-commerce solution for small businesses and entrepreneurs. Infusionsoft's marketing automation capabilities include campaign building, e-mail marketing, lead management, marketing and sales alignment, and reporting capabilities. Infusionsoft is fully HIPAA and HITECH Act compliant, enabling medical and HIPAA-covered entities to use the software easily.

Infusionsoft's breadth of functionality makes it an attractive solution for any small business looking for a one-stop-shop. Infusionsoft eliminates the complexity of enterprise-grade solutions, offering the core marketing automation capabilities on an intuitive, easy to use, configurable platform. Infusionsoft's marketing, CRM, and e-commerce capabilities are all included out-of-the-box on the same platform. For businesses that need more breadth or depth as they scale, Infusionsoft provides an open API and app marketplace.

Infusionsoft caters to small, micro-businesses by design, and does not aim to serve larger companies. Therefore, it does not provide the depth of functionality or machine learning capabilities larger companies might need. Infusionsoft has basic reporting but lacks out-of-the-box visual reporting capabilities. Its UI, while easy to use, is also less visual than some of its competitors. Also, several customers with whom we spoke experienced lengthier implementations than expected.

Because it is intuitive, it drives rapid adoption with training and implementation support. Infusionsoft's rapid release cadence and extensive usability and functionality enhancements position it to outpace the market in terms of growth on both fronts.

[Marketo](#)

Marketo is a provider of digital marketing solutions with marketing automation; account-based marketing; e-mail, mobile, and social advertising, marketing analytics; and predictive content applications. Customers can purchase individual applications, customize their own solution by bundling applications, or purchase one of Marketo's preconfigured solutions, which include lead management, e-mail marketing, consumer marketing, customer base marketing, and mobile marketing. Marketo serves both the B2B and B2C markets, and while it comes from SMB roots, the vendor is expanding

rapidly into the enterprise segment.

Considering its breadth, Marketo is relatively intuitive. Marketo continues to improve in this area, with plans to update the UI and UX this year. Marketo's product structure enables customers to pay for only the functionality they need, which makes Marketo a more cost-effective alternative to some of its big-name competitors.

Less-skilled marketers may experience a steeper learning curve with Marketo than they would with a slimmer solution. Despite Marketo's breadth and depth in terms of functionality and predictive analytic capabilities, it is not as advanced in machine learning as some of its competitors. Marketo is more cost effective than some of the highest functionality solutions on the market, but is still a big investment for SMBs. Historically, Marketo has not provided the most hands-on, accessible customer support.

Marketo suits B2B and B2C SMBs and enterprises looking for a solution that balances breadth and depth of functional offerings with intuitiveness. Marketo is slated for rapid growth, and we predict the vendor will exceed market trends for growth in terms of both usability and functionality.

Mautic

Mautic is a marketing automation provider with contact management, customer lifecycle management, multi-channel marketing, reporting, lead scoring, nurturing, and conversion capabilities. Mautic has a free, open-source product created and supported by the open-source community and a hosted product known as the Mautic Cloud, catering to marketing agencies and enterprises. Mautic offers API integrations social tools, screen sharing and video tools, and CRM capabilities.

Mautic's ability to innovate at a rapid pace due to its open-source roots is a noted strength. The open-source version is written and owned by the community, but Mautic tests, refactors, and rewrites that code for its commercial product, Mautic Cloud. This ensures Mautic Cloud meets security and performance standards but still benefits from the speed of innovation that comes with open-source software. Mautic offers a free version of Mautic Cloud with an identical UI and functionality but limits the number of contacts and email that can be sent.

Mautic Cloud's UI is easy to use but lacks the visual appeal of some of its competitors. Mautic is sold to SMBs and enterprises alike, but has not reached the functional maturity required by large enterprises with complex

marketing requirements. Mautic delivers core marketing automation functionality at a reasonable cost. With Mautic's accelerated pace of innovation and recent functionality enhancements, we expect it will outpace the market's rate of growth in the near future.

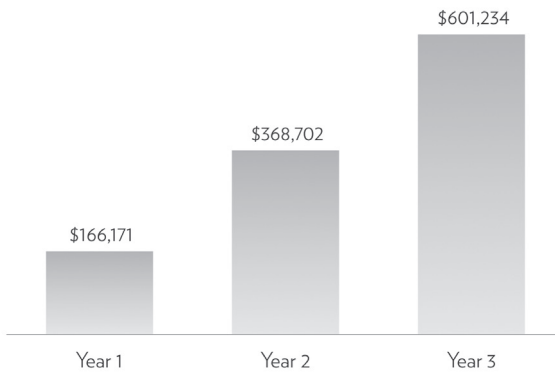


ROI Case Study: Mautic

uTest • ROI: 585%

uTest replaced its legacy marketing automation solution with Mautic to drive growth and innovation while cutting costs. Nucleus found that the low cost of Mautic allowed uTest to provide greater user access, increasing employee productivity across the organization. uTest can also deliver more personalized messaging, increasing engagement and improving satisfaction.

CUMULATIVE NET BENEFIT



THE COMPANY

uTest is a community of 300,000 digital experts and software testers that help companies improve their digital customer experiences through market research, user feedback, and digital testing.

KEY BENEFIT AREAS

We assessed the direct and indirect benefits associated with uTest's implementation of Mautic and found that the following benefits contributed to its positive ROI:

- **Cost savings.** Implementing Mautic instead of purchasing another instance of the legacy solution saved uTest \$45k annually in licensing costs: a 60 percent reduction. Also, to achieve the same results it does with Mautic, uTest estimates it would need to hire an additional creative services employee and an entry-level marketer. Avoiding these additional hires saved uTest over \$140k on an annualized basis.
- **Increased employee and manager productivity.** Mautic increased the productivity of front-end employees and managers from the community, marketing, and creative services teams by automating processes such as updating content and template building. Implementing Mautic saved uTest over \$16k on an annualized basis by increasing the productivity of application-facing employees and also saved over \$32k by increasing the productivity of managers.
- **Improved community satisfaction.** uTest also experienced improved satisfaction of the uTest software testing community. uTest's net promoter score, which is based on satisfaction surveys completed by testers, improved by 20 percent.
- **Improved key performance indicators.** uTest measures the effectiveness of its marketing automation initiatives by traffic, customer engagement, and new users. Since implementing Mautic, uTest improved upon its KPIs. It increased e-mail open rates by 10 percent, e-mail referral traffic by 17 percent, and event registrations by 400 percent. uTest increased the number of new users by 90 percent and the number of return users by 27 percent.

BEST PRACTICES

uTest prepared for the implementation of Mautic much like it did for its previous marketing automation implementation: defining a high-level plan, customer personas, and campaign outlines. uTest discovered that with Mautic, however, no prior experience or preparation is necessary. Mautic takes customers through implementation and training step by step. Based on uTest's experience, other companies considering implementing Mautic need not invest a significant amount of time preparing for deployment.

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Oracle Eloqua

Eloqua is Oracle's B2B marketing automation product, with campaign management, lead management, marketing measurement, sales and marketing alignment, and targeting and segmentation capabilities. Eloqua is part of Oracle Marketing Cloud, a cloud-based, data-driven marketing platform in the Oracle CX Suite. Customers can purchase Oracle Marketing Cloud in its entirety or any of its products individually.

Few vendors can compete with Oracle Marketing Cloud's functionality and analytic capabilities, as well as the resources it devotes to product innovation. Of the Oracle Marketing Cloud products, Eloqua receives the highest functionality feedback, with both breadth and depth to its functional capabilities. Since its major UI and UX enhancements last year, Eloqua's campaign mapping functionality—the Campaign Canvas—has become one of the most visually appealing and flexible. Eloqua also emphasizes the importance of data quality and accessibility and has strong Web marketing capabilities.

Compared to the solutions with which Eloqua is most frequently short-listed, it tends to be the most expensive, though not as costly as its B2C counterpart, Responsys. For companies looking for a solution which is easy for the average marketer to use right out-of-the-box, Eloqua is not the best choice, despite its investment in increasing usability. Like many of Oracle's products, Eloqua tends to require lengthier, more complex implementations than some of its less functionality-rich counterparts.

Eloqua's campaign building capabilities are visual and intuitive, lead scoring is powerful, and editing, data management, e-mail, and analytic capabilities are among the strongest. While its usability has increased, Eloqua does not compromise functionality to cater to the entry-level user. We expect Eloqua will set the pace for the market in terms of growth, continuing to increase in terms of usability, and slightly more so in terms of functionality.

Oracle Responsys

Oracle Responsys is Oracle Marketing Cloud's enterprise-scale B2C marketing automation product, which enables marketers to create customer profiles, build and test marketing campaigns, and orchestrate interactions with customers across e-mail, mobile, display, social, and Web media. Oracle Responsys has analytics, commerce marketing, e-mail marketing, e-mail campaign testing, mobile marketing, and program orchestration capabilities.

Responsys is much like its B2B counterpart—Oracle Eloqua—yet it takes a B2C approach. Because of the platform's intuitiveness, most marketers—despite their level of experience—can get complex marketing initiatives up and running quickly, especially if they utilize Oracle Responsys' training services. Responsys prioritizes tight integrations with data sources, including known customer data as well as first, second, third party, and Oracle Datalogix data.

Oracle Responsys is more cost effective than it once was, but the solution is still a big investment. Oracle's new consulting packs, which offer implementation consulting for a fixed price, do bring transparency and consistency to the process.

Responsys's highly intuitive, drag-and-drop campaign management and segmentation capabilities make the solution easier to use than some of its competitors. The solution is suitable for companies with the budget to invest in a highly capable B2C marketing automation solution backed by a top-tier vendor like Oracle.

Real Magnet

Real Magnet is a marketing platform with marketing automation, e-mail marketing, inbound marketing, social media marketing, event management, survey management, agency services, and webinar marketing solutions. Real Magnet's Marketing Automation solution consists of e-mail, analytics, lead

management, social, and landing page capabilities.

Real Magnet is still most competitive in the association space. Its marketing automation solution is one of the easiest to use on the market, and it has a strong e-mail marketing focus which is appealing to many marketers. Real Magnet takes a step-by-step approach to marketing automation. Real Magnet is also a cost-effective choice, charging based on the number of active contacts, not total contacts.

Real Magnet struggles to increase its visibility in the marketing automation space, due to its small-scale roots and association focus. We expect Real Magnet is unlikely to grow at the same pace as the market in terms of usability.

Salesforce Journey Builder

Salesforce Journey Builder is Salesforce Marketing Cloud's consumer engagement solution, catering primarily to B2C customers. Journey Builder enables marketing, sales, and service departments to collaboratively manage interactions with customers across the customer lifecycle, using e-mail, SMS, push notifications, ads, Web, and apps. Customers can build customer journeys through visual drag-and-drop functionality similar to a campaign mapping tool, and analyze click-through-rates CTRs, channel performance, and conversions. Marketing Cloud includes Einstein, Salesforce's platform capability providing artificial intelligence, which brings advanced predictive capabilities and send-time optimization to Journey Builder.



Journey Builder is designed for the business user, which makes it easier to wade through functionality-wise than some of its competitors. We found that Salesforce customers experience increasingly positive returns on their Salesforce Marketing Cloud investments, with the average ROI of Salesforce deployments increasing more than twofold in the past two years.

Journey Builder came to Salesforce through the acquisition of ExactTarget. Journey Builder is still developing, but as its customer base grows, so too does its functionality, as it expands to meet increasingly complex user needs. With Salesforce's pace of innovation, we expect to see Journey Builder increase in both functionality and usability.

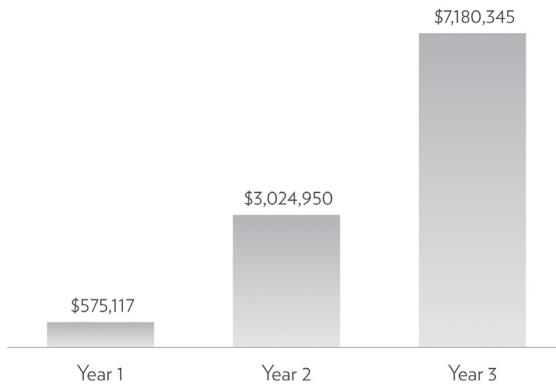


ROI Case Study: Salesforce Marketing Cloud

Amplify • ROI: 1079%

Amplify deployed Salesforce Marketing Cloud to replace a decentralized system with a cloud-based marketing solution that would drive future growth. Nucleus found that the project enabled the company to increase the productivity and effectiveness of marketing, optimize advertising spend, and increase revenue.

CUMULATIVE NET BENEFIT



THE COMPANY

Amplify Credit Union is a member-owned financial cooperative with 57,000 members and eight locations throughout Texas. Amplify's services include personal banking and savings; auto, personal, and real estate loans; wealth management; and commercial banking and lending. Founded in 1967 as IBM Texas Employees Federal Credit Union, Amplify has stayed true to its mission to serve the best interests of its members, providing them with the opportunity to accumulate savings and to reinvest those savings into its borrowers and communities.

KEY BENEFIT AREAS

By implementing Salesforce Marketing Cloud, Amplify

increased the effectiveness and productivity of its marketing team, optimized campaigns, and increased its revenue. Nucleus assessed the direct and indirect benefits associated with Amplify's implementation of Salesforce Marketing Cloud and found that benefits included:

- **Increased marketing productivity.** With Salesforce Marketing Cloud, marketers increased their efficiency. For example, time devoted to running reports decreased by 98 percent, from 120 hours to three hours per month. Without Salesforce Marketing Cloud, Amplify estimates it would need four additional full-time marketing employees to do the same amount of work its marketing department does now, leading to annual savings of over \$300k in employee salary alone.
- **Improved effectiveness of marketing.** Salesforce Marketing Cloud significantly improved the effectiveness of the marketing department by improving lead generation and client engagement.
 - Amplify increased the number of leads generated for the same advertising spend by 50 percent, using its own CRM data to target advertising.
 - Using look-alike audience functionality and Journey Builder, Amplify increased e-mail open rates by 45 percent and click-through rates by 20 percent.
- **Optimized campaigns.** Amplify estimates it would have needed to double its advertising spend with its prior marketing program to achieve the same number of leads per month as it does now. Salesforce Marketing Cloud, therefore, decreased Amplify's cost per lead by 50 percent.
- **Increased revenue.** Salesforce Marketing Cloud has directly impacted revenue. Implementing the solution led to an annual net profit of over \$1.4m and a 400 percent increase in revenue for Amplify's outbound sales team.

BEST PRACTICES

Prior to Salesforce, Amplify spent over one year considering another vendor that did not end up suiting the needs of the business. To avoid delaying deployment, companies should consider several vendors and select the one that best suits their needs, taking all factors—such as functionality, usability, and compliance—into account. Had Amplify considered Salesforce initially alongside the other vendor, it would have one additional year of experiencing the benefits of Salesforce Marketing Cloud.

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Salesforce Pardot

Pardot, Salesforce's B2B Marketing Automation solution, consists of e-mail marketing, lead generation and management, ROI reporting, and sales alignment. Pardot serves B2B organizations of all sizes. Pardot now exclusively integrates with Salesforce and is now sold as one of five Marketing Cloud products.

Pardot is one of the most accommodating solutions to non-technical users, with a high degree of usability. For companies that wish to give sales more marketing responsibilities, in turn letting marketers focus on strategic initiatives, Pardot is a strong choice. We found Pardot to be the solution with the greatest potential to influence micro-marketing. Pardot customers benefit from Salesforce's strong customer support and frequent platform-wide product releases as well.

For experienced marketers looking for a solution with a high degree of functionality and advanced analytics out of the box, Pardot may seem limited. For a more complete marketing solution, customers should consider purchasing several of the Marketing Cloud offerings—perhaps pairing Pardot with Email, Mobile, Web, or Social—or purchasing Einstein as a B2B Marketing add-on, which provides more advanced analytics.

Pardot provides a solution that is easy to use, quick to implement and adopt, and designed for a specific niche. However, it may lack the deeper functionality required by more sophisticated users. Salesforce customers seeking a tool that aligns marketing and sales, backed by strong customer support and native integrations, would benefit from Pardot. Pardot frequently enhances

its solution, and benefits from Salesforce platform-wide updates. We expect that Pardot, like other Salesforce products, will continue to outpace the market in functionality growth. However, Pardot is already one of the easiest solutions to use on the market, so we expect Pardot will keep pace with the market in terms of usability.

Salesfusion

Salesfusion is a marketing automation platform with campaign management, ABM, lead and account management, Web and social media marketing, SEO, landing pages and forms development, and CRM. Salesfusion also has a managed service offering for customers who want Salesfusion to help them manage and execute marketing strategy. Salesfusion caters primarily to the SMB sector.

Salesfusion's intuitive, no-strings-attached approach to marketing automation software make it a good fit for SMBs looking for a cost-effective solution with a wide range of functionality available right out of the box, including an internal CRM system and ABM capabilities. Salesfusion prices its solution based on the number of contacts, and, whether users have one thousand or one million, all functionality is included for an unlimited number of users. For customers that wish to go beyond the free support that is included, Salesfusion's new Concierge Service is a unique option. Due to Salesfusion's low TCO and its recent release focusing on further increasing usability and productivity, Salesfusion is likely to deliver strong ROI for its customers.

Salesfusion's fast release cadence is an indicator of positive growth and expansion, but the vendor will need to expand on functionality and analytics capabilities, not just on usability, if it is to gain a competitive edge against more well-known vendors in the space.

Salesfusion is easy to implement and adopt and is very cost-effective. Salesfusion is well suited for SMBs looking for an all-in-one, high usability marketing solution at an attractive price point, but enterprises and sophisticated users may find it lacks depth of functionality. We expect it will slightly outpace market growth in terms of both usability and functionality, with slightly more emphasis on functionality.

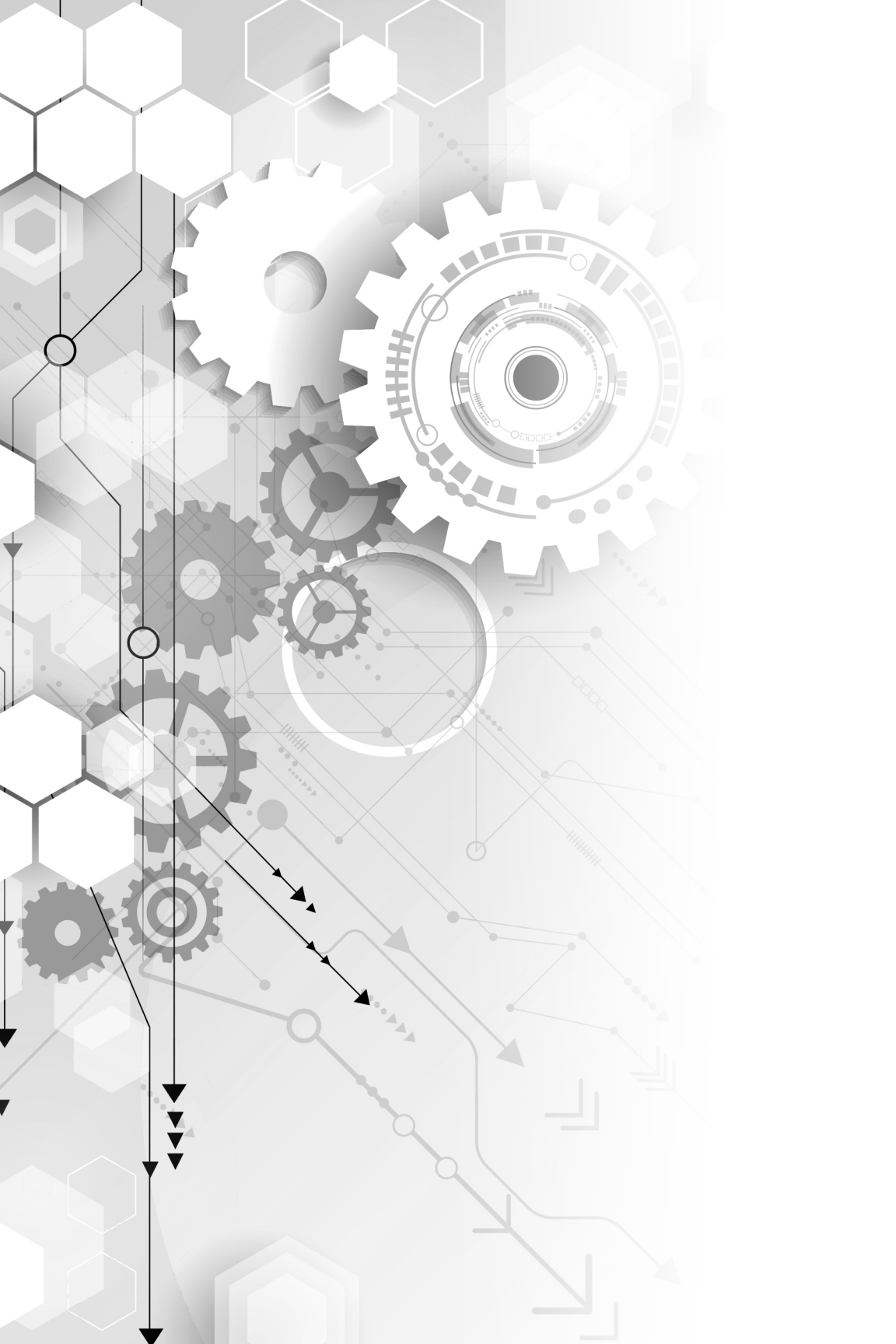
SAP Hybris Marketing Cloud

SAP Hybris Marketing Cloud is a suite of marketing solutions that includes Commerce Marketing, Dynamic Customer Profiling, Loyalty Management, Marketing Resource Management, Marketing Lead Management, Marketing Analytics, and Segmentation and Campaign Management. SAP Hybris Marketing Cloud is sold in three versions—Standard, Professional, and Enterprise—with increasing scope of the entire solution suite. Consistent with the overall direction of SAP, SAP Hybris Marketing has, by and large, shifted to the Cloud, but it can still be purchased as an on-premises solution.

SAP Hybris Marketing Cloud is a good fit for companies with advanced marketing needs looking for a marketing solution with a broad set of capabilities. SAP is also known for its focus on security and privacy, which may comfort some companies reticent to transition to the cloud.

Although less costly than the on-premises version, SAP Hybris Marketing Cloud is still a big investment. SAP Hybris Marketing Cloud is highly visual and intuitive given its high degree of functionality, but companies without complex marketing requirements and advanced marketing teams may be better suited with a slimmer solution.

Because functionality can be more advanced than is commonly available in the general market, it may require more training, consulting, or expertise than that of other major vendors and there may be fewer developers who can support it. With advancements in analytics, we expect SAP Hybris Marketing Cloud will slightly outpace the market in functionality growth and stay consistent with the market in usability.



CHAPTER 13

CONCLUSION

The pace of technology development is accelerating. It is a constant trend we've seen since before 1950. The introduction of the PC in the early 80s represented a quantum leap, as did the commercialization of the Internet in the 90s and the emergence of cloud computing in the 2000s. We can only expect a faster cadence going forward and another big game-changing breakthrough on the horizon.

Making the right tech decisions only gets more challenging as we go forward. Especially now that we are seeing highly divergent solutions, giving us serious options for our businesses. The tenure of CIOs is not getting longer. In fact, CMOs, COOs, and even CEOs are increasingly susceptible to IT decisions. We saw the CEO of Equifax step down this year over a major security breach, all during a year that the organization was poised to greatly expand its services.

This is all the result of technology playing an ever more central role in most businesses. From automated processes to tighter, better applications, technology has the ability to help a business break out—or fail. And these decisions are not made in a vacuum. Understand that your competitors are also evaluating their options. So, it's not only about nailing the decision on your end, but knowing that a misstep could give a competitor a serious leg up.

I hope this book has given you a framework for making technology decisions over the next 12 months, with an eye to the future. The biggest shift in thinking on tech decisions is to focus on what your business challenges and

needs are, not force-fitting your business processes into what several leading vendors can offer.

This is no longer about what large, established vendors can cook up in their R&D labs and then try to market to us. In fact, the vendors offering the most value are more aligned to end-user customers than ever before. That's why we are seeing more vertical solutions developed to meet customer demands. And visual dashboards that save customers time and share insight internally to quickly gain consensus. Features that positively impact the bottom line.

We've even heard some vendors lament that the customer is now in control. Good! It's leading to better software, stronger technology, and more constructive solutions. It is reminding the tech industry of why we are in business in the first place—to solve customer problems and enable new capabilities.

We have been preaching customer alignment since we were founded in 2001. You don't write as many ROI case studies as Nucleus Research without gaining an innate understanding of the end-user customer's needs.

Beyond customer-centricity, we see a number of other trends over the next five years that you should consider in making tech decisions.

Integration

Integration of enterprise software applications will not only continue but accelerate going forward. Now that everything is basically cloud-based, meaning it's software, it is getting easier to integrate CRM, ERP, HCM, supply chain, data management, analytics, and other applications. In fact, I identified the trend as the mega-app in a blog last year. At some point, the applications become so integrated, that CRM is viewed as a feature set of the mega-app rather than a stand-alone, alongside the ERP feature set. From a decision-making perspective, look for solutions that have preintegration and even certification to work with other apps in your organization.

Forget CapEx vs. OpEx

Not all cloud solutions are created equal. Merely being in the cloud is not enough. Now that virtually every tech solution is in the cloud, and the differentiator is who offers the best cloud solution. Plus, it's much easier to switch to another vendor solution now. Especially if you subscribe to a SaaS product

offer by a service provider. Remember how in the 90s we could switch from AT&T to Sprint to MCI to save money.

Let's hope it's not a fight to the bottom with price cutting, although that'd certainly benefit customers. Instead, I expect businesses to switch services as a new vendor or service provider offers beneficial new features.

Automate usability

Remember how I talked about usability as a major, yet overlooked area for many in making technology decisions. Smart vendors realize this and are seeking better ways to boost usability. In addition to more intuitive interfaces and visual tools, expect an automated approach. As solutions get more complex, vendors will provide automated steps to help simplify management for business users. It's a concept I've identified as the Dark Cockpit Approach.

I'm a pilot and I enjoy flying. In the aviator world, a trend arose in the 60s as planes became more sophisticated. The very simple controls from earlier models began to get more complicated as beneficial new features were introduced. In fact, the cockpit started to get very crowded with each new technology and a slew of new switches, gauges, and buttons. It was hard to know where to concentrate and pilots became confused. It was a major safety threat, to be honest.

That's where airline manufacturers got smart by creating the dark cockpit. Rather than keeping all of the controls lit up for the duration of the flight, the planes were created to only light up those controls that were necessary for that particular leg of the journey. Everything else was darkened. A set of controls would light up for take-off, then dim out as controls needed for the next stage of the flight were illuminated. The cockpit became fully automated as a means to guide pilots and cut through the complexity.

This same principal will emerge for complex software. Automation will help users focus on the features they need at any given point during a project or process. In fact, vendors that adopt the dark cockpit approach will greatly outpace their competition. This is a huge differentiator and poised to be an end-user favorite.

AI and IoT are on the horizon

I know I said that AI and IoT are shiny objects. Distractions from technologies that can deliver real business value today. I stand by that, but at some

point in the future, AI and IoT can become commercially viable and even useful.

It'd put my money on AI if I had to choose one. We are already seeing some advances, and as I've noted before, the pace of development is only getting faster. AI holds great promise to automate tasks and in some cases to provide more consistency by reducing human error. I think we all know AI's rise is inevitable. But that doesn't mean you have to force it into your business now. Keep a watchful eye and wait until it can deliver real value for your business.

I almost see more excitement around IoT in many business circles. It's not that I think it won't ever make sense, but right now as an application, it's very limited for most businesses. It's never good to implement technology for tech's sake alone. Like AI, keep an eye on IoT but wait until it offers real value for your business.

Increase the cadence of your tech reviews

Career experts say that employees should review new opportunities every six months, whether they are actively looking or not. There is a benefit in knowing what is out there and weighing options, they argue. I'm not sure about that, but it is great advice for executives in charge of making tech decisions. An annual review these days is irresponsible and even six months is too long. Especially with a steady stream of analytics coming in with metrics and insight into your performance. We have become a continuous world that is always on. That's especially true of technology.

Even if you are reviewing technology often, take time to look at the big picture and consider new options. And do it more often.

Again, I hope this book gives you some clarity into assessing technology and making better decisions. With an eye on business value now and building more value in the future, dig into what's out there, give it a candid and honest look, and make the best decision to grow your business. As the competition grows, technology can either help you play offense and pull ahead of your rivals or put you on the defensive trying to catch them.

Good luck!

GLOSSARY OF ABBREVIATIONS

ACA	Affordable Care Act
AEC	architecture, engineering, and construction
AI	artificial intelligence
API	application programming interface
ATS	applicant tracking system
AWS	Amazon Web Services
BI	business intelligence
BPM	business process management
CMS	Centers for Medicare & Medicaid Services
CPA	certified public accountant
CPM	corporate performance management
CPQ	configure, price, quote
CX	customer experience
DaaS	data as a service
DBaaS	database as a service
DLP	data loss prevention
DOL	U.S. Department of Labor
EAM	enterprise asset management
ECM	enterprise content management
EMEA	Europe, the Middle East, and Africa
ERP	enterprise resource planning
ESP	enterprise simulation platform
ESS	employee self-service

ETL	extract, transform, and load
FLSA	Fair Labor Standards Act
FMLA	Family and Medical Leave Act
FSM	field service management
FSS	file, sync, and share
GDPR	General Data Protection Regulation
GL	general ledger
HCM	human capital management
HRG	HR generalist
HRIS	human resource information system
HRM	human resource management
IaaS	infrastructure as a service
IBP	integrated business planning
IO	inventory optimization
IoT	internet of things
ISV	independent software vendor
KPI	key performance indicators
LMS	learning management system
MAC	Medicare Administrative Contractor
MEIO	multiple echelon inventory optimization
MES	manufacturing execution system
MIO	multi-enterprise inventory optimization
MRO	maintenance, repair, and overhauls
MSS	manager self-service
NLP	natural language processing
OBIEE	Oracle Business Intelligence Enterprise Edition
OCR	optical character recognition
OEM	original equipment manufacturers
OLAP	online analytical processing
PaaS	platform as a service
PBF	planning, budgeting, and forecasting
PEO	professional employer organization
PII	personally identifiable information
PSA	professional services automation
RFP	request for proposal
ROI	return on investment
RTVN	real time value network
S&OP	sales & operations planning

SaaS	software as a service
SCM	supply chain management
SFA	salesforce automation
SKU	stock keeping unit
SMB	small and medium business
SOA	service-oriented architecture
SPM	sales performance management
SQL	sales qualified leads
SSAS	Microsoft SQL Server Analytics Service
SSO	single sign on
SSRS	Microsoft SQL Server Reporting Service
TCO	total cost of ownership
UFM	Unified Forecasting Method
UI	user interface
UX	user experience
VAR	value added reseller
WCM	web content management
WFM	workforce management

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