The Total Economic Impact™ Of QuickBase

Cost Savings And Business Benefits Enabled By QuickBase, A Low-Code Platform For Citizen Development

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ABOUT FORRESTER CONSULTING

Forrester Consulting provides independent and objective research-based consulting to help leaders succeed in their organizations. Ranging in scope from a short strategy session to custom projects, Forrester's Consulting services connect you directly with research analysts who apply expert insight to your specific business challenges. For more information, visit forrester.com/consulting.

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Executive Summary

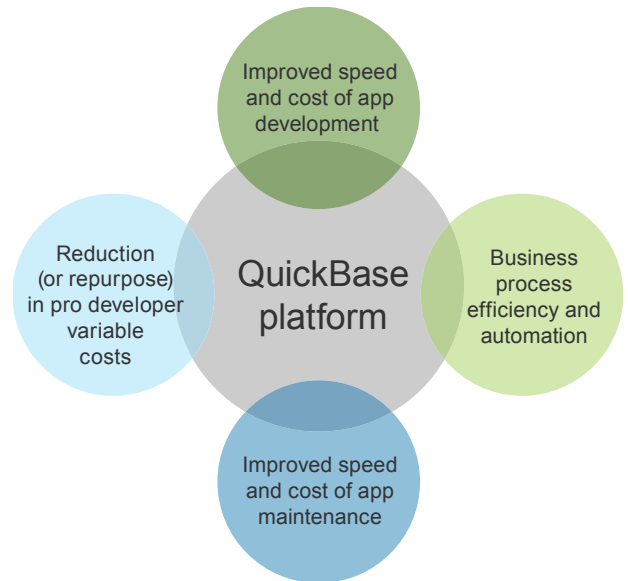QuickBase, Inc. commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying QuickBase. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of QuickBase on their organizations.

To better understand the benefits, costs, and risks associated with a QuickBase implementation, Forrester interviewed four customers with multiple years of experience using QuickBase. QuickBase is a cloud-based platform that allows organizations to quickly build and deploy custom business applications. The product is a flexible, agile application platform that uses low-code/no-code techniques to empower nontechnical business users — "citizen developers" — to build and deploy custom applications that are vital to their day-to-day business process needs. QuickBase also provides value for rapid application development for more technical business analysts and pro developers.

Improved speed and cost of app development

Reduction (or repurpose) in pro developer variable costs

QuickBase platform

Business process efficiency and automation

Improved speed and cost of app maintenance

Source: Forrester Research, Inc.

QUICKBASE CUSTOMERS DEVELOP AND DEPLOY BUSINESS APPLICATIONS FAST, IMPROVING DAY-TO-DAY PROCESS EFFICIENCY AND AUTOMATION

Our interviews with four existing customers and subsequent financial analysis found that a composite organization with 2,000 QuickBase users, based on these interviewed organizations, experienced the risk-adjusted ROI, benefits, and costs shown in Figure 1.[1] See Appendix A for a description of the composite organization.

The analysis points to three-year present-value benefits of $9,979,313 and three-year present-value costs of $2,772,829, adding up to a net present value (NPV) of $7,206,484. This results in a NPV per user of $3,603.25.

FIGURE 1

Financial Summary Showing Three-Year Risk-Adjusted Results

| ROI: 260% | NPV: $7.2M | NPV per user: $3,603.25 | Payback: 6 months after deployment |

Source: Forrester Research, Inc.

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› **Benefits.** The composite organization experienced the following risk-adjusted benefits that represent those experienced by the interviewed companies:

- **Reduced time and cost to develop applications.** The composite organization saved an average of eight weeks of development time per application utilizing the QuickBase platform. The organization also saved on resource costs by utilizing citizen development resources instead of traditional IT resources. The composite organization saw a cost saving of $19,231 per application developed. This time and cost savings meant the composite organization was able to build 55 net-new applications each year, resulting in a three-year, risk-adjusted total cost savings over the prior application development method of $2,538,462.

- **Faster time-to-business-value (due to reduced time-to-delivery).** In addition to being able to develop applications faster, the composite organization benefits from the additional business value each of these applications brings to the company. The business value of these applications is derived from employee productivity increases, business process time savings, improved effectiveness of these processes, and the additional bottom-line value these applications bring to the business. The composite organization sees additional business value of $4,418,835 over the three years of analysis.

- **Faster time to update and maintain applications.** Not only are these applications faster to develop, but the organization benefits from time and cost savings associated with updating and maintaining them. The composite organization saves development time and uses a more affordable resource, and it no longer has to wait a month or two to make its updates; instead, it can make updates in real time through line-of-business citizen development. This results in a three-year, risk-adjusted cost savings of $4,513,641.

- **Avoided headcount in IT.** The composite organization avoided hiring two IT developers by deploying QuickBase. This could include hiring new developers for added development resources, but it could also represent the repurposing of existing IT pro developers on tier 1 strategic applications such as an ERP system. The value of this avoided cost over the three years was $612,000.

- **Cost savings from solution reduction/reduced IT sprawl.** Through the investment in QuickBase, the composite organization eliminated the use of several redundant solutions across its workgroups. Not only does this save the organization money, but it also avoids use of rogue IT applications, creating a more efficient IT and business model. Forrester estimates that the composite organization saves $75,000 each year by reducing other solutions.

› **Costs.** The composite organization incurred the following risk-adjusted costs:

- **Annual software licensing fees of $660,000.** These are fees paid on a monthly basis to QuickBase.

- **Time spent for internal planning and support.** The composite organization spent time planning for and implementing QuickBase. In addition, the composite organization has internal resources that support and maintain its QuickBase deployment. This works out to a three-year risk-adjusted cost of $845,250.

- **Training costs.** These include the costs of creating and administrating training programs for IT developers, citizen developers, and end users of the applications. This represents a risk-adjusted cost of $71,938. Forrester notes that QuickBase is currently rolling out a new application developer training program, which could change these costs.

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Disclosures

The reader should be aware of the following:

› The study is commissioned by QuickBase, Inc. and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.

› Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the report to determine the appropriateness of an investment in QuickBase.

› QuickBase reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester's findings or obscure the meaning of the study.

› QuickBase provided the customer names for the interviews but did not participate in the interviews.

TEI Framework And Methodology

INTRODUCTION

From the information provided in the interviews, Forrester has constructed a Total Economic Impact (TEI) framework for those organizations considering implementing QuickBase. The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision, to help organizations understand how to take advantage of specific benefits, reduce costs, and improve the overall business goals of winning, serving, and retaining customers.

APPROACH AND METHODOLOGY

Forrester took a multistep approach to evaluate the impact that QuickBase can have on an organization (see Figure 2). Specifically, we:

› Interviewed QuickBase marketing, sales, and/or consulting personnel, along with Forrester analysts, to gather data relative to QuickBase and the marketplace for QuickBase.

› Interviewed four organizations currently using QuickBase to obtain data with respect to costs, benefits, and risks.

› Designed a composite organization based on characteristics of the interviewed organizations (see Appendix A).

› Constructed a financial model representative of the interviews using the TEI methodology. The financial model is populated with the cost and benefit data obtained from the interviews as applied to the composite organization.

› Risk-adjusted the financial model based on issues and concerns the interviewed organizations highlighted in interviews. Risk adjustment is a key part of the TEI methodology. While interviewed organizations provided cost and benefit estimates, some categories included a broad range of responses or had a number of outside forces that might have affected the results. For that reason, some cost and benefit totals have been risk-adjusted and are detailed in each relevant section.

Forrester employed four fundamental elements of TEI in modeling QuickBase's service: benefits, costs, flexibility, and risks.

Given the increasing sophistication that enterprises have regarding ROI analyses related to IT investments, Forrester's TEI methodology serves to provide a complete picture of the total economic impact of purchase decisions. Please see Appendix B for additional information on the TEI methodology.

FIGURE 2

TEI Approach

| Perform due diligence | Conduct customer interviews | Design composite organization | Construct financial model using TEI framework | Write case study |

Source: Forrester Research, Inc.

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Analysis

For this study, Forrester conducted a total of four interviews with representatives from the following companies, which are QuickBase customers based in the US:

› A global manufacturing firm with over $4 billion in revenue each year and around 16,000 employees. It has 335 total users on the QuickBase platform, and they use five main applications. The firm's center of excellence uses an additional three applications.

› A pharmaceutical company focusing on veterinary medicines. It employs 3,800 people, with offices in over 40 countries and revenues around $900 million each year. This organization has 2,000 licensed users on QuickBase, and it has 175 applications built on the QuickBase platform.

› A business services organization located in the US and Canada with annual revenues around $1.5 billion. This organization has about 14,000 employees, with 2,700 key users on the platform. It has built around 80 applications on the QuickBase platform for its users.

› A human services organizations with around $1.8 billion in revenue. The organization is mostly based in the US and has 50,000 employees, with about 2,050 key licensed users on the QuickBase platform. The organization has 150 applications built on the QuickBase platform.

INTERVIEW HIGHLIGHTS

The four interviews uncovered the following drivers behind the organizations' need for QuickBase:

› **Line-of-business users are new demanding applications at a faster rate to improve the efficiencies and automation of their processes.** Across all four of our organizations, we heard about the line of business' need to improve its day-to-day processes. These organizations want to improve their processes in order to improve their daily employee productivity and make their day-to-day activities more efficient. In several of our interviews, we spoke with members of the organization's business operations team or center of excellence, whose main goal is to drive business process transformation and bring in technology that can help the organization meet these needs. For example, the VP of global operations at the manufacturing organization told us about its complex order procedures, which were being handled primarily via emails, phone calls, and hallway conversations. "There's a lot of conflict back and forth. Working inside of emails and chats is not a good way to have a work environment. It leads to frustration and conflict. We needed a way to resolve that." The veterinary pharmaceutical organization has offices spread across the globe, all with unique process needs that need to be tied to and easily accessible by other areas of the organization.

"We needed to be able to collect information for multiple departments, track it, and create a workflow around it. Our traditional applications just weren't cutting it."

~ Program manager, operational effectiveness, business services organization

These center of excellence and business operations teams are tasked with finding technology that can drive digital transformation within their business units to maximize the efficiency and effectiveness of their workforce. The where and how varied widely across organizations: order management processes, inventory management such as warehousing and procurement processes, IT project management, and application testing are just some examples of the processes these teams aim to transform. But the key driver was the same: Organizations have a need to leverage technological innovations that aim to improve their business processes and ultimately fuel business growth.

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› **IT organizations are spread too thin to keep up with application SLAs for the business.** While the business need is there, our organizations told us they struggle to balance the high demand for business applications against an IT organization that is under-resourced. The IT organizations are overwhelmed by the business needs. IT is operating in an environment with scarce resources, and the cost of new resources is too high. One CIO told us, "We couldn't keep up; we were constantly faced with a backlog of requests." Organizations struggle with an overwhelming IT backlog, which frustrates both the IT workforce and the lines of business that are waiting too long for the applications they need. As we heard from the manufacturing organization: "We don't have good IT support in terms of flexibility and speed. We need stuff done in days, in weeks, not months." Both IT and the business teams felt the pressure and frustration of this environment, as more applications are brought online to meet constantly changing customer, partner, market, and competitive requirements.

› **This has led to unsanctioned rouge IT sprawl.** The high demand from the business organization, coupled with scarce, expensive IT resources attempting to manage a huge backlog, has created a risky IT environment. Most of our interviewees highlighted their battle with unsanctioned IT solutions being brought in by the lines of business in an attempt to circumvent IT to solve their own problems without IT's approval or input. Our interviewed organizations reported that this has created an expensive, inefficient use of technology within their organizations, with little governance or control. As we heard from the program manager in the operational effectiveness department at the business services organization: "People are going out and spending money trying to solve their own problems within their little group, so we have lots of different solutions going on. Their ultimate goal is to streamline their business. . . . But the more people that do that, the more self-destructive the business model is, because you're not consolidating your data sources and you're not leveraging your spend." This hurts not only their IT environment but their business units as well, according to the organizations.

> *"We had different pockets of people using different solutions, and it was not very organized."*
>
> ~ VP of global operations, manufacturing organization

Organizations also reported that this approach creates a dangerous environment of heavily siloed data, ultimately making the business users less efficient. Due to this, organizations reported that their teams waste time gathering, aggregating, and reporting on data, as it's hard to find. They also reported that they see their business teams "recreating the wheel" and duplicating efforts across business lines on the same activities, instead of sharing and utilizing ideas and processes across the board. This is compounded by the fact that purchasing departments need to create RFPs and evaluate vendors for every new use case, a process that in and of itself is highly costly and inefficient. The attempts to improve their business processes through unauthorized rouge IT solutions have ultimately made the business less agile.

› **Organizations are on the hunt for a platform that aligns and unifies their IT and business organizations.** Our interviews revealed that each of our organizations understood that, to ultimately transform their business processes, they needed to find an environment that balanced the need for productivity with the proper IT governance to ensure an optimized process. Organizations want to balance the business needs with IT governance to empower digital transformation within their companies.

Our interviews uncovered that QuickBase was selected not only because it helped the organizations with the above issues, but also because of its ease of use; ability to easily integrate into the existing environment; and scalable, agile cloud deployment. Our interviewees discussed how quickly they were able to get up and running on the platform. To ensure the success of the deployment and support adoption, many of the organizations discussed how their centers of excellence supported training and adoption efforts to drive successful business process transformation. The QuickBase platform supported their overall efforts to become a more efficient organization.

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The interviews revealed that QuickBase was selected because it:

› **Enables custom application development by nontechnical business users, or "citizen developers."** Our interviewees found huge value in empowering line-of-business users to become citizen developers and self-develop applications. By deploying QuickBase to their organizations, our interviewees found that they were able to quickly develop needed business applications without relying heavily on the IT organization. As we heard from one organization: "IT gets to focus highly on their priorities, but we found the true priority of the business is just the day-to-day operations, which was sometimes getting neglected. So, the citizen developer's approach, where we've just taken it upon ourselves to create the apps, makes us a much more efficient business." Using QuickBase and citizen developers dramatically cut down on the time it took to develop and update applications; our interviews revealed that QuickBase not only cut down on wait time but drastically reduced development time as well. As we heard from the veterinary pharmaceutical organization: "Being able to use the business users was a key difference for us, as well as the speed of development. This pushed QuickBase ahead of the competition for us". Our organizations saw a 60% to 85% reduction in development times.

> *"QuickBase gives us the platform to react quickly and be as flexible as possible."*
>
> ~ VP of application services, human services company.

Additionally, by leveraging citizen developers, applications and processes were built exactly to their unique specifications, these specifications that are best known by the business subject matter expert rather a best effort requirements translation from IT. This resulted in less back and forth between traditional IT development resources and line-of-business end users. Citizen developers were able to utilize the fully customizable applications to meet the exact needs of their teams.

Ultimately, using citizen developers meant our organizations saw less pressure on their IT teams. Previously, the IT team was bombarded with requests from the business users; business users were either told to wait in line or told a flat out "no" if there were no resources available or their priority was not high on IT's list. As we heard from one interviewee, "With QuickBase, we just don't see the same backlog that we used to, because we can get it done so much faster." By utilizing citizen developers, the IT team is able to focus on its mission-critical apps, with more time focused on its highest-value activities, while business users take care of their needs. This helped IT teams avoid the need for more expensive resources and helped them keep their backlog in check.

› **Has flexible, joint development models that allow IT and the business to collaborate to more quickly develop vital business applications.** The interviewed organizations each used QuickBase to create a unique development process that blended IT and LOB users together to efficiently create applications that met the need of the business. In traditional development models, IT primarily owns the process of creating applications, getting input on requirements from the business. Our interviews uncovered that using QuickBase meant that citizen developers could participate in the last mile of the application creation or maintenance, where they are uniquely qualified to create and refine the exact process or workflow. IT can then focus on its own strengths in application architecture, governance, and controls.

Some of our interviewed organizations had the IT team take the lead on developing applications, providing the business with customizable applications that the business users can tailor to their unique needs in the last mile of developing the app. A VP of application development told us: "There are certain apps where we just give full rein of the application to the business. If you need to add a new field, do it. But we have other users that just don't want that; they still want to rely on us for that type of support. So with QuickBase, we have the flexibility. We can let them do it, or if we need to hold onto it, we can." Other organizations use IT only in a limited fashion, with the business users creating, customizing, and deploying apps that align with their different needs based on their business unit. From one organization, we heard: "IT doesn't support it at all. For us, it's huge because we find it takes IT a while to respond to our basic needs." The organizations that utilized this method found that using citizen developers was critical to their ability to scale the business and keep up with

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the changing needs of the organization. Ultimately, QuickBase offered a spectrum of development models that play to either the organization's specific needs or the needs of a specific set of applications.

› **Allows IT to be in the know and decide how involved it wants to be.** Because they are able to leverage flexible development models, our interviewed organizations revealed that the IT organization did not need to be involved throughout the entire development process with QuickBase. One organization told us how IT was involved during negotiations: "IT was involved from the beginning, making sure the data is secure, the contract is as expected, [and] they are comfortable with QuickBase as a vendor." Our interviewed organizations reported that their IT organizations played a key role in instituting governance and control procedures, particularly around roles, permissioning, and integrations, but they were also able to step back and let the citizen developers take control in an IT-sanctioned platform.

"It's easy to learn, it's interactive, and it's just so quick to get from start to finish building an application."

~ Program manager, operational effectiveness, business services organization

› **Meets needs across business functions.** Our interviews uncovered that these organizations were impressed with QuickBase's ability to meet the needs of many different business units. Having one platform that is flexible and agile enough to build apps that meet the needs of the entire business created many benefits for our organizations. Our interviewees told us how QuickBase provided solutions in areas such as marketing management, project management, CRM/sales management, and IT/technology management. For example, one organization told us: "The departments using it are very widespread. We have transportation, communication, real estate, legal, facilities, learning and development, shipping, safety, just day-to-day business in the field, sourcing. . . . We use it widespread across the organization." In the next section, we'll tell you some specifics about how the interviewed organizations are using the platform.

We also heard that while QuickBase was traditionally brought in to support one business unit, other units quickly realized the value of the platform. QuickBase enabled these organizations to quickly scale the solution and bring on additional business units. As we heard from the pharmaceutical company, "Soon we understood that we could build applications for other parts of the organization and just keep getting value." This meant that the interviewed organizations were able to save money, time, and energy on procuring multiple solutions across business units; they also saved money and time on training, both from a development perspective and an end user perspective. The organizations could also reduce rogue IT applications and have one solution for many different types of users.

› **Increases the visibility of data, reducing duplication of work, errors, and miscommunications.** Data is only as valuable as how you can use it. By having all their data in one central hub, organizations found that, with QuickBase, they were able to build applications that helped to break down silos of data. This helped them solve problems and improve processes across the entire organization. As one interviewee told us: "The more you can consolidate what's on people's computers and get it open to multiple departments, the more powerful your business becomes, just because you're all speaking the same language and can work toward a common goal. We are trying to get away from spreadsheets and email for task management. That information is just not easily shared across different departments. We needed to elevate how we are managing things."

QuickBase's reporting capabilities ensured users had the right data at the right time and provided them with a clearer picture of the processes and what needed to be done. As another organization told us, "It brings the transparency needed to the organization — and ensures that employees have access to the data they need to maximize their value to the organization." For example, one organization uses an application to track workload. Managers can see their entire team's workloads and adjust as necessary. These types of reports helped our interviewed organizations be more informed and ultimately make smarter, better business decisions.

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› **Is an easy-to-use, intuitive platform that drives fast app builder and end user adoption.** Our interviews reported that the training needed for both IT developers and citizen developers was significantly less than for other solutions they had looked at, and end users were quickly able to utilize the applications with limited training involved. As we heard from one organization: "It's easy to use for sure. It's easy to learn, and people really carry what they have learned from spreadsheets and things into the QuickBase solution, making it a lot easier for people to get onboard. We don't have to spend a lot of time getting familiar with the product; they can just get in there and use it." Organizations also found benefits from the software-as-a-service (SaaS) deployment of QuickBase. They were up and running on the platform very quickly when they decided to deploy; could quickly scale to add more users or business units to the solution; and were able to avoid additional infrastructure costs. However, QuickBase also has powerful capabilities required for professional developers, particularly for data tracking, gathering, and reporting applications. More advanced training is available for these power users.

COMPOSITE ORGANIZATION

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an associated ROI analysis that illustrates the areas financially affected. The composite organization that Forrester synthesized from these results represents an organization with the following characteristics:

› It is a US-based organization with about 8,000 total employees across the globe.

› The annual revenue of the composite organization is around $1.4 billion each year.

› In its role to utilize technology to maximize efficiencies and improve processes across the organization, the composite organization's center of excellence worked in conjunction with IT to select a platform that could meet the needs of the business without putting additional stress on the IT organization.

› Prior to its investment in QuickBase, the composite organization primarily leveraged traditional development techniques like .Net and Java. The organization also leveraged traditional, highly paid, harder-to-find IT "coder" developers.

After an extensive RFP and business case process evaluating multiple vendors, the composite organization's center of excellence and IT organizations worked together to choose QuickBase and began deployment of the platform:

› The organization first deployed within its project management office, but the value of the platform began to spread. Soon, many different departments across the organization were using QuickBase to build applications to improve their day-to-day business processes. These processes cover a wide variety of areas but include reducing the reliance on spreadsheets, ensuring data and information can be shared more easily across teams, and improving the reporting and tracking of information.

› IT manages roles and permissions within the QuickBase platform, assigning different levels of access to the multiple users across the organization based on their needs. The center of excellence team works with the line-of-business users to train both citizen developers and the end users of the applications. Applications are primarily created by citizen developers; however, they will occasionally lean on IT for expertise as needed, in areas such as governance, security, and integration.

› Each year, the organization uses QuickBase to build 55 net-new applications that are utilized throughout different departments. By the end of Year 3, the organization has a total of 138 applications, accounting for applications that are no longer used.

› The organization has around 2,000 licensed users of applications within QuickBase. On average, approximately 10 of those users are citizen developers who develop applications in QuickBase. These users fluctuate based on the needs of the organization. There are often also many additional Citizen Developers who, while may not develop applications from scratch, are deeply involved in updating and maintaining applications on an as-needed basis.

THE VALUE OF AN APPLICATION

The interviewed organizations are using applications created in QuickBase in a wide variety of ways. The use cases are quite diverse; those that are best suited for your organization will vary based on many factors, such as your organization's industry, size, and compliance requirements; the size and sophistication of the IT organization; and various processes. Here is a sampling of the types of applications we heard about:

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TABLE 1

QuickBase Application Examples

An innovation and ideation site	Case management application	Asset management
Daily site visits tracking, which allows district managers to provide store feedback	Site survey that helps the team provide feedback on different locations	An application to help test new products and procedures and gather reactions and feedback
CRM application	Branch tracking application	Contract management application
Document and task management system	A sales tracking/customer relations application	Mobile application testing and tracking
Supply chain management application	Inventory management application	Order management application

Source: Forrester Research, Inc.

Many of the benefits we will discuss throughout the rest of this case study are predicated on the value of an application. The purpose of this section is to articulate how we determined the value of an application for our composite organization.

One key takeaway we learned from speaking to our organizations is that each app serves a different purpose; therefore, each has a different impact on or value to the organization. It is important to note that the organizations found value from each application. Some applications may have an impact on a large number of people or be critical to the organization, while others may help improve the productivity of a smaller team (i.e decentralized business/functional unit led deployments). As we heard during our interviews, "Different apps cater to different groups of people. Some are utilized by everyone and are business critical, [while] some are less important but help make certain groups more effective in their daily tasks." For this case study, we considered applications to be high impact, medium impact, and low impact. To determine the value of each type of application, we considered examples from each of the interviewed organizations and created an average value based on the type of application for the composite organization. Forrester urges readers to consider the types of applications they could use and think about an average value they could expect from each type.

Based on details provided to us in the interviews, Forrester modeled the average benefit of each type of these apps. For a detailed view of how we modeled each application, please see Appendix C. For high-impact apps, we looked at apps that made a large impact on the bottom line, in terms of large cost savings or additional revenues earned. These types of applications may include large order management applications that allow processing of more orders, or inventory or asset management applications that provide large cost savings. For most organizations, there may be one or two applications that are high impact. Much more common were applications that were used either across business groups or within large functional groups, such as logistics, supply chain, or purchasing departments. These types of applications helped to save time and boot productivity across a number of users. We consider these medium-impact applications. The most common applications were those used by smaller groups within teams, used to speed up certain business processes and make the team more productive. These types of apps help to make individuals more productive on their day-to-day tasks, such as data entry or simple project management. These are our low-impact applications.

The final value of each type of application for the composite organization was calculated by taking the benefit of each application and subtracting the estimated cost to develop each application. These calculations are outlined below. We will use these calculations to help us understand the overall benefit of QuickBase within an organization. For more details on how the individual benefit of each application was developed, please see Appendix C.

Forrester notes that when calculating the cost of development, the developer salary used is $120,000 annually. This represents a median value of salary ranges for developers, which can range widely.

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TABLE 2

The Average Value Of An Application Based On Impact

Ref.	Metric	Calculation	High-Impact App	Medium-Impact App	Low-Impact App
A1	Time to develop (weeks)		12	10	8
A2	Cost of development per week	$120,000 annual salary of development resource/52 work weeks	$2,307.69	$2,307.69	$2,307.69
A3	Cost to develop app	A1*A2	$27,692.31	$23,076.92	$18,461.54
A4	Benefit value of each application		$227,692.31	$55,384.62	$27,043.27
At	**The average value of an application based on impact**	**A4-A3**	**$200,000.00**	**$32,307.69**	**$8,581.73**

Source: Forrester Research, Inc.

BENEFITS

The composite organization experienced a number of quantified benefits in this case study, based on the experiences of our interviewed organizations:

› Reduced time and cost to develop applications.

› Faster time-to-business-value (due to reduced time-to-delivery).

› Faster time to update and maintain applications.

› Avoided headcount in IT.

› Cost savings from solution reduction/reduced IT sprawl.

Reduced Time And Cost To Develop Applications

Our first benefit looks at the reduction in time to develop and deliver new applications using the QuickBase platform and citizen developer resources. As we discussed previously, our interviews revealed that development time was drastically reduced with QuickBase. Prior to implementing QuickBase, the composite organization relied solely on expensive, scarce, traditional development resources. With QuickBase, it was able to leverage existing business users to become citizen developers and create apps. This reduced both the cost of the resource and the time it took to develop and deliver applications. Our interviewees shared with us examples of how they saw this in their organizations:

› "Our application would have taken at least six months previously; it only took us a month with QuickBase."

› "Our site tracking application was done in two weeks. It probably would have taken us three to four months without QuickBase."

› "Our CRM would have taken us probably nine to 12 months with four resources on it full-time. With QuickBase, that was cut down significantly."

Prior to implementing QuickBase, our composite organization was only able to develop 10 apps each year. This left IT with a significant backlog of required applications and the needs of the business unmet. Now, utilizing QuickBase and its citizen developers, the composite organization is able to develop 55 net-new applications per year. In addition, it is able to build apps that are designed specifically to the organization's needs. The ability to create and build completely customizable applications meant that the organization did not need to make sacrifices or change processes to match an out-of-the-box solution; it had the flexibility to build exactly what its processes required.

To calculate this benefit, we looked at the cost to develop an application prior to deploying QuickBase using traditional IT development resources versus the cost to develop an application with QuickBase using citizen developers. It took our composite organization an average of 10 weeks to develop an application prior to implementing QuickBase. With a fully loaded annual salary of $120,000 for a traditional IT developer, this works out to $23,077. With QuickBase, our composite organization was able to develop an application in an average of two weeks. With an average fully loaded salary of $100,000 for a citizen developer, this works out to a cost of $3,846 per application. The total cost savings per app is $19,231. Table 3 below shows how this was calculated. To adjust for the differentiation in time it may take to develop different applications based on type and complexity, this calculation was risk-adjusted down by 20%. The risk-adjusted total cost savings associated with the reduced time and cost to develop applications with QuickBase over the three years was $2,538,462.

It is important to note that organizations that choose to use QuickBase with their traditional IT development teams still see the value of rapid application development, though this was not included in this model. In these instances, the time to develop an application is still dramatically cut down, but the cost of the development

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resource stays the same. See Appendix D for the benefit calculation of using QuickBase to develop applications with traditional IT resources.

TABLE 3

Reduced Time And Cost To Develop Applications

| Ref.	Metric	Calculation	Year 1	Year 2	Year 3
B1	Time to develop prior to QuickBase (weeks)		10	10	10
B2	Annual fully loaded salary of traditional development resource		$120,000	$120,000	$120,000
B3	Cost to develop one application prior to QuickBase	B1*(B2/52 weeks per year)	$23,077	$23,077	$23,077
B4	Time to develop after QuickBase (weeks)		2	2	2
B5	Annual fully loaded salary of citizen developer resource		$100,000	$100,000	$100,000
B6	Cost to develop one application after QuickBase	B4*(B5/52 weeks per year)	$3,846	$3,846	$3,846
B7	Cost savings per app	B3-B6	$19,231	$19,231	$19,231
B8	Number of net-new apps per year		55	55	55
Bt	Reduced time and cost to develop applications	(B3-B6)*B8	$1,057,692	$1,057,692	$1,057,692
	Risk adjustment	↓20%			
Btr	**Reduced time and cost to develop applications (risk-adjusted)**		**$846,154**	**$846,154**	**$846,154**

Source: Forrester Research, Inc.

Faster Time-To-Business-Value (Due To Reduced Time-To-Delivery)

The faster time to develop an application is only part of the story; each of these new apps is tied to an increase in business value as well. As discussed in the Value of An Application section, the business value of these applications is derived from employee productivity increases, business process time savings, improved effectiveness of these processes, and additional bottom-line value these applications bring to the business. Prior to implementing QuickBase, our interviewees described how their organizations were inefficiently managing key processes and often lacked the tools and applications to become a more efficient operation. With QuickBase, the organizations were able to develop more applications to meet the needs of the business and improve their operations. Organizations shared with us that as they produced significantly more apps, they also saw an increase in business impact and value.

Each year, the composite organization is able to produce 55 net-new apps; however, after Year 1, a certain percent of those applications are decommissioned each year. As we heard from our interviewed organizations, some apps are only needed for a period of time, and then they are set aside. The apps created in QuickBase vary in complexity, size, and value. Earlier in the case study, we defined for our composite organization an average value for three different types of applications: high-impact apps, medium-impact apps, and low-impact apps. Figure 3 depicts the mix of application types for our composite organization. Forrester notes that this mix will differ by organization, and urges the reader to consider how it will impact their organization.

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FIGURE 3

Mix Of Application Types For Composite Organization

High-
impact apps
1%

Medium-
impact apps
40%

Low-
impact apps
59%
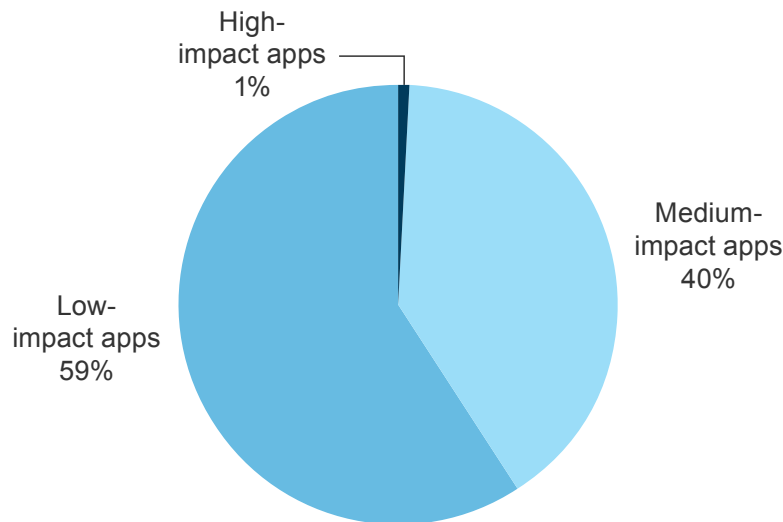
Source: Forrester Research, Inc.

To calculate the overall value derived from these different applications, we consider the value of each type of application, the total number of applications, and the mix of types of applications. High-value applications are typically initiatives that are crucial to the company's business and would have been developed with or without QuickBase. Therefore, we include only the *incremental* value provided by these apps since QuickBase drastically reduces the development time; the applications are available to users an average of a year ahead of when they would otherwise have been usable. The applications calculated as medium and low impact, while important, affect smaller numbers of users and might not have been developed without QuickBase. as the effort required with more traditional development would have made it impossible to address all of the opportunities for applications, particularly with the lower impact achieved. Therefore, the benefit of these is cumulative, as outlined in the below table.

Table 4 below shows how this benefit was calculated for each year. From our interviews, we uncovered a large variance in the number of applications within a company, the value derived from an application, how many were decommissioned each year, and the mix of types of applications within a company. To adjust for this, this calculation was risk-adjusted down by 20%. The risk-adjusted total benefit associated with the business value of these applications developed in QuickBase over the three years was $4,418,835.

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TABLE 4

Business Value Of Reduced Time-To-Delivery

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
C1	The average value of a high-impact application		$200,000	$200,000	$200,000
C2	The average value of a medium-impact application		$32,308	$32,308	$32,308
C3	The average value of a low-impact application		$8,582	$8,582	$8,582
C4	Number of net-new apps each year		55	55	55
C5	Percent of apps decommissioned each year			25%	25%
C6	Total number of apps		55	96	138
C7	Percentage of high-impact apps		1%	1%	1%
C8	Percentage of medium-impact apps		40%	40%	40%
C9	Percentage of low-impact apps		59%	59%	59%
C10	Business value of high-impact apps	C6*C7*C1	$110,000.00	$110,000.00	$110,000.00
C11	Business value of medium-impact apps	C6*C8*C2	$710,769.18	$1,243,846.07	$1,776,922.95
C12	Business value of low-impact apps	C6*C9*C3	$278,477.14	$487,334.99	$696,192.85
Ct	Business value of reduced time-to-delivery	C10+C11+C12	$1,099,246.32	$1,841,181.06	$2,583,115.80
	Risk adjustment	↓20%			
Ctr	**Business value of reduced time-to-delivery (risk-adjusted)**		**$879,397**	**$1,472,945**	**$2,066,493**

Source: Forrester Research, Inc.

Faster Time To Update And Maintain Applications

Another huge benefit that drove cost savings for our interviewees was the reduced time and cost to update existing applications. Prior to using the QuickBase platform, if business users needed an update, they relied solely on IT developers. They were faced with long wait times of at least one to two months on average, which hurt their efficiency and ultimately the business value they received from the applications. In the old platforms, it also took developers an average of 50% longer to actually make the update. This caused large backlogs of requests with IT. After deploying QuickBase, the citizen developers were able to make these updates themselves, in real time, and they no longer had to wait for IT to get to their request. This both saves wait time and helps the application get updated more quickly. Organizations also benefit from the lower-cost resource. Ultimately, the biggest impact is that the organizations are able to make updates more quickly, resulting in faster time-to-business-value for their applications with QuickBase.

To calculate this benefit for our composite organization, we assume that it makes an average of six updates per app each year. The updates required vary in time and effort, but for the purposes of this calculation, we assume that, prior to QuickBase, it took a traditional IT development resource an average of 5 hours to make an update. With QuickBase, our composite organization's citizen developers are able to make an update in an average of 2.5 hours. In addition to the shorter development time, our composite organization benefits from a reduction in

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time waiting for an application to be updated. Prior to implementing QuickBase, the organization waited an average of four weeks for any given update. To calculate the value of waiting each week for an update, we took the average annual value of the three types of applications (high, medium, and low impact) and divided by 52 weeks a year. However, to be conservative, we only account for two weeks of waiting time in our benefit calculation. We assume that, in most cases, not getting an update does not grind the business to a halt, and the business users would find a workaround even if it was not time efficient. The total cost savings per update is $3,257.

Based on feedback from our interviews, Forrester risk-adjusted this benefit down by 20% to account for variances in development time, wait time, the number of updates each year, and the number of applications. Assuming six updates per app per year, the risk-adjusted total cost savings associated with the reduced time to update and maintain applications with QuickBase over the three years was $4,513,641. Table 5 illustrates this calculation.

TABLE 5

Faster Time To Update And Maintain Applications

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
D1	Total number of apps		55	96	138
D2	Average number of updates per app per year		6	6	6
D3	Time to make one update before QuickBase (hours)		5	5	5
D4	Annual fully loaded salary of traditional development resource		$120,000	$120,000	$120,000
D5	Cost of one update prior to QuickBase	D3*(D4/2,080 annual work hours)	$288	$288	$288
D6	Cost of waiting one week		$1,544.16	$1,544.16	$1,544.16
D7	Total cost of one update prior to QuickBase	D5+(D6*2-week wait period)	$3,377	$3,377	$3,377
D8	Time to make one update after QuickBase (hours)		2.5	2.5	2.5
D9	Annual fully loaded salary of citizen developer resource		$100,000	$100,000	$100,000
D10	Total cost of one update after QuickBase	D8*(D9/2,080 annual work hours)	$120	$120	$120
D11	Cost savings per update	D7-D10	$3,257	$3,257	$3,257
Dt	Faster time to update and maintain applications	D1*D2*D11	$1,074,676	$1,880,684	$2,686,691
	Risk adjustment	↓20%			
Dtr	**Faster time to update and maintain applications (risk-adjusted)**		**$859,741**	**$1,504,547**	**$2,149,353**

Source: Forrester Research, Inc.

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Avoided Headcount In IT

Based on feedback from the interviewed organizations, we conservatively determined that the composite organization would need to hire or repurpose (i.e., take away from tier 1 apps) at least two IT development resources to keep up with the demand of the business without QuickBase. In reality, many of the interviewed organizations felt that they would need more like five full-time IT development resources to meet the business' needs. In some cases, interviewees felt that they could never find a way to manage the workload within their budgets.

These two IT development resources are each assumed to be compensated at an average fully loaded salary of $120,000. Table 6 illustrates this calculation. The total three-year risk-adjusted cost avoidance comes to $612,000.

Again, to compensate for factors that could affect this calculation, Forrester risk-adjusted this benefit down by 15%.

TABLE 6

Avoided Headcount In IT

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
E1	Number of full-time equivalent (FTE) hires avoided		2	2	2
E2	Fully loaded annual salary		120,000	120,000	120,000
Et	Avoided headcount in IT	E1*E2	$240,000	$240,000	$240,000
	Risk adjustment	↓15%			
Etr	**Avoided headcount in IT (risk-adjusted)**		**$204,000**	**$204,000**	**$204,000**

Source: Forrester Research, Inc.

Cost Savings From Solution Reduction/Reduced IT Sprawl

One major issue that our interviewed organizations brought up was workgroups implementing their own software solutions to meet the needs of their individual business units. As we discussed earlier, this creates an inefficient environment, both from a budget perspective and a business process perspective. Through their deployment of QuickBase, the organizations were able to discontinue the use of other solutions across these workgroups. The organizations now build applications that meet their needs in QuickBase, with the added benefit that their data is available across the organization, and they can reduce IT sprawl by decommissioning unnecessary solutions. The reduction in costs varied across the organizations we spoke with. For example, we heard from one organization, "We had one system that we were paying $22,000 a month for; QuickBase does it for a fraction of the cost." Another organization told us it was saving $5,000 a month in licenses for a database management system that it no longer uses.

From implementing QuickBase, the composite organization eliminated the need for other solutions being used across a few workgroups. Forrester conservatively estimates that this is a cost saving of $75,000 each year. Table 7 illustrates the calculations used.

To compensate for variations in the annual cost of these solutions, Forrester risk-adjusted the benefit down by 15%. The risk-adjusted total benefit resulting from cost savings from solution reduction and reducing IT sprawl over the three years was $191,250.

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TABLE 7

Cost Savings From Solution Reduction/Reduced IT Sprawl

Ref.	Metric	Calculation	Year 1	Year 2	Year 3
E1	Cost savings per year		$75,000	$75,000	$75,000
Et	Cost savings from solution reduction/reduced IT sprawl	E1	$75,000	$75,000	$75,000
	Risk adjustment	↓15%			
Etr	**Cost savings from solution reduction/reduced IT sprawl (risk-adjusted)**		**$63,750**	**$63,750**	**$63,750**

Source: Forrester Research, Inc.

Total Benefits

Table 8 shows the total of all benefits across the five areas listed above, as well as present values (PVs) discounted at 10%. Over three years, the composite organization expects risk-adjusted total benefits to be a PV of more than $9.9 million.

TABLE 8

Total Benefits (Risk-Adjusted)

Ref.	Benefit Category	Year 1	Year 2	Year 3	Total	Present Value
Atr	Reduced time and cost to develop applications	$846,154	$846,154	$846,154	$2,538,462	$2,104,259
Btr	Faster time-to-delivery — business value	$879,397	$1,472,945	$2,066,493	$4,418,835	$3,569,348
Ctr	Faster time to update and maintain applications	$859,741	$1,504,547	$2,149,353	$4,513,641	$3,639,851
Dtr	Avoided headcount in IT	$204,000	$204,000	$204,000	$612,000	$507,318
Etr	Cost savings from solution reduction/reduced IT sprawl	$63,750	$63,750	$63,750	$191,250	$158,537
	Total benefits (risk-adjusted)	**$2,853,042**	**$4,091,396**	**$5,329,749**	**$12,274,187**	**$9,979,313**

Source: Forrester Research, Inc.

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COSTS

The composite organization experienced a number of costs associated with the QuickBase solution:

> Licensing costs of the QuickBase solution.

> Internal planning and support costs.

> Training.

Licensing Costs Of The QuickBase Solution

Software licensing fees for QuickBase were incurred on a monthly basis. For the purposes of this model, we assume that a yearly fee is paid upfront and at the beginning of each year for the following 12 months. So, the cost incurred during the initial period pays for the first year of service, the cost incurred during Year 1 pays for the second year of service, and so forth. This model assumes a monthly fee of $55,000, or $660,000 each year.

It is important to note that software costs vary from organization to organization, considering different licensing agreements, what other products may be licensed from the same vendor, and other discounts. To compensate, this cost was risk-adjusted up by 10%. The risk-adjusted cost of software over the three years was $2,178,000. See the section on Risks for more detail. This calculation is laid out in Table 9.

TABLE 9

Licensing Costs Of The QuickBase Solution

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
G1	Licensing costs per year	$55,000 per month * 12 months per year	$660,000	$660,000	$660,000	
Gt	Licensing costs	G1	$660,000	$660,000	$660,000	$0
	Risk adjustment	↑10%				
Gtr	**Licensing costs (risk-adjusted)**		**$726,000**	**$726,000**	**$726,000**	**$0**

Source: Forrester Research, Inc.

Internal Planning And Support Costs

Based on feedback from the interviewed organizations, Forrester estimates that the composite organization will have two FTEs involved for the six-month planning and implementation period, which includes all planning and deployment of the QuickBase solution. For our composite organization, this includes one FTE from the center of excellence and one from the IT team. In subsequent years, the composite organization incurs costs associated with ongoing support for the solution by the two FTEs. This includes governance issues, user administration, and user setup, as well as support for the citizen development team and end users. This effort is largely managed by the center of excellence but occasionally requires input and support from the IT team as well. Table 10 shows this calculation.

Planning and support costs will likely vary based on the size of your deployment. To compensate, this cost was risk-adjusted up by 15%. The risk-adjusted cost of internal planning and support over the three years was $845,250.

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TABLE 10

Internal Planning And Support Costs

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3
H1	Number of FTEs		2	2	2	2
H2	Average fully loaded annual salary of resources	6 months during initial period	$105,000	$105,000	$105,000	$105,000
Ht	Internal planning and support costs	H1*H2	$105,000	$210,000	$210,000	$210,000
	Risk adjustment	↑15%				
Htr	**Internal planning and support costs (risk-adjusted)**		**$120,750**	**$241,500**	**$241,500**	**$241,500**

Source: Forrester Research, Inc.

Training

While the training required for the QuickBase platform was relatively limited, the composite organization did spend time training citizen developers and end users on the platform. Based on feedback from the interviewed organizations, Forrester estimates that 20 hours are spent on creating and designing a short training program for citizen developers and end users. When the platform was deployed, the 10 citizen developers spent 8 hours in training, and the 2,000 end users spent 1 hour in training. This calculation is illustrated in Table 11.

The training required and number of users trained will vary by organization. To compensate for these variances, the cost of training was risk-adjusted up by 15%. The risk-adjusted cost of training over the three years was $71,938.

TABLE 11

Training

Ref.	Metric	Calculation	Initial	Year 1
I1	Time to develop training	20 hours * $50.48 hourly salary	$1,010	
I2	Time to take training, citizen developer	8 hours per citizen developer * 10 citizen developers * $48.07 hourly salary		$3,846
I3	Time to take training, app user	1 hour per user * 2,000 users * hourly salary of $28.85		$57,700
It	Training	I1+I2+I3	$1,010	$61,546
	Risk adjustment	↑15%		
Itr	**Training (risk-adjusted)**		**$1,161**	**$70,777**

Source: Forrester Research, Inc.

Total Costs

Table 12 shows the total of all costs as well as associated present values (PVs), discounted at 10%. Over three years, the composite organization expects total costs to be a PV of a little more than $2.7 million.

TABLE 12
Total Costs (Risk-Adjusted)

Ref.	Cost Category	Initial	Year 1	Year 2	Year 3	Total	Present Value
Gtr	Licensing costs	$726,000	$726,000	$726,000	$0	$2,178,000	$1,986,000
Htr	Internal planning and support costs	$120,750	$241,500	$241,500	$241,500	$845,250	$721,325
Itr	Training	$1,161	$70,777	$0	$0	$71,938	$65,504
	Total costs (risk-adjusted)	**$847,911**	**$1,038,277**	**$967,500**	**$241,500**	**$3,095,188**	**$2,772,829**

Source: Forrester Research, Inc.

FLEXIBILITY

Flexibility, as defined by TEI, represents an investment in additional capacity or capability that could be turned into business benefit for some future additional investment. This provides an organization with the "right" or the ability to engage in future initiatives but not the obligation to do so. There are multiple scenarios in which a customer might choose to implement QuickBase and later realize additional uses and business opportunities. Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix B).

Two straightforward scenarios that help realize additional benefits in the future include adding more end users or creating new applications in QuickBase. This will help the organization see additional benefits tied to user productivity and development cost savings.

Another scenario that will help realize additional benefits in the future is using QuickBase to aid in prototyping. IT developers and business stakeholders can use the platform to work together and speed up application development. This is particularly powerful in a mission-critical application situation, where IT needs to take the lead but can hand off development to citizen developers. Using this process can save time and money, as well as continue to help align IT and the business, which results in more impactful applications that drive business transformation goals across the organization.

RISKS

Forrester defines two types of risk associated with this analysis: "implementation risk" and "impact risk." Implementation risk is the risk that a proposed investment in QuickBase may deviate from the original or expected requirements, resulting in higher costs than anticipated. Impact risk refers to the risk that the business or technology needs of the organization may not be met by the investment in QuickBase, resulting in lower overall total benefits. The greater the uncertainty, the wider the potential range of outcomes for cost and benefit estimates.

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TABLE 13
Benefit And Cost Risk Adjustments

Benefits	Adjustment
Reduced time and cost to develop applications	↓ 20%
Faster time-to-delivery — business value	↓ 20%
Faster time to update and maintain applications	↓ 20%
Avoided headcount in IT	↓ 15%
Cost savings from solution reduction/reduced IT sprawl	↓ 15%

Costs	Adjustment
Licensing costs	↑ 10%
Internal planning and support costs	↑ 15%
Training	↑ 15%

Source: Forrester Research, Inc.

Quantitatively capturing implementation risk and impact risk by directly adjusting the financial estimates results provides more meaningful and accurate estimates and a more accurate projection of the ROI. In general, risks affect costs by raising the original estimates, and they affect benefits by reducing the original estimates. The risk-adjusted numbers should be taken as "realistic" expectations since they represent the expected values considering risk.

The following impact risks that affect benefits are identified as part of the analysis:

› Slower adoption than anticipated.

› Employees resisting using new processes and methodologies through QuickBase applications.

› Variability in the value gained from applications.

The following implementation risks that affect costs are identified as part of this analysis:

› Internal labor needed for planning and implementation is more than expected.

› Training requires more time than expected.

During one interview, we heard concerns regarding the speed of the cloud platform. However, the other interviewees did not share these concerns.

Table 13 shows the values used to adjust for risk and uncertainty in the cost and benefit estimates for the composite organization. Readers are urged to apply their own risk ranges based on their own degree of confidence in the cost and benefit estimates.

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Financial Summary

The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the composite organization's investment in QuickBase.

Table 14 below shows the risk-adjusted ROI, NPV, and payback period values. These values are determined by applying the risk-adjustment values from Table 13 in the Risks section to the unadjusted results in each relevant cost and benefit section.

FIGURE 4

Cash Flow Chart (Risk-Adjusted)

Financial Analysis (risk-adjusted)
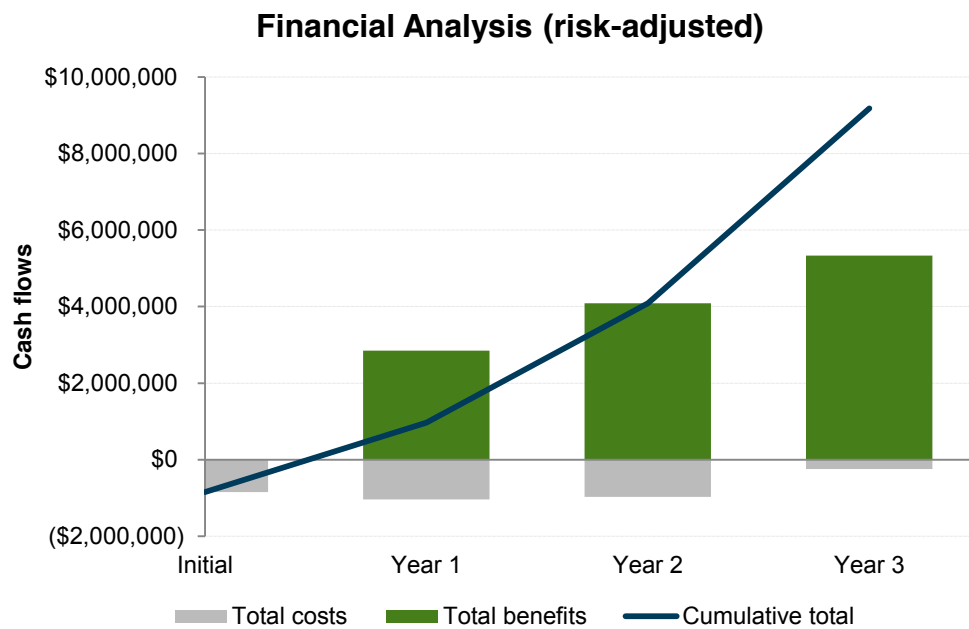
Source: Forrester Research, Inc.

TABLE 14

Cash Flow (Risk-Adjusted)

Summary	Initial	Year 1	Year 2	Year 3	Total	Present Value
Total costs	($847,911)	($1,038,277)	($967,500)	($241,500)	($3,095,188)	($2,772,829)
Total benefits	$0	$2,853,042	$4,091,396	$5,329,749	$12,274,187	$9,979,313
Total	**($847,911)**	**$1,814,765**	**$3,123,896**	**$5,088,249**	**$9,178,998**	**$7,206,484**
ROI						**260%**
Payback period (months)						**6**

Source: Forrester Research, Inc.

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QuickBase: Overview

The following information is provided by QuickBase, Inc. Forrester has not validated any claims and does not endorse QuickBase or its offerings.

QuickBase is a unique low-code platform for citizen development for quickly building, customizing and connecting scalable, secure cloud applications mapped to unique business challenges, all without compromising IT governance and control. QuickBase solutions solve a broad set of challenges customized to your unique needs including project and process management, asset or order tracking, customer and contracts management, time and expense, and HR applications. The platform solves these challenges via a modern application platform that includes workflow and process automation, easy to use forms, and personalized charts and reports driven by customizable business logic.

QuickBase does this by empowering citizen developers in the line of business to deliver "right for me" cloud applications faster than traditional application development methodologies with the visibility and accountability required by IT. This methodology unites IT and the business to accelerate business transformation across the organization through rapid prototyping of processes and apps that are built, deployed, and customized at a fraction of the cost of traditional development which typically relies on expensive, hard to find professional developer resources.

Learn more about Low-Code Rapid Application Development from QuickBase.

Launched in 1999 and headquartered in Cambridge, Mass., QuickBase Inc., formerly a division of Intuit, is a newly independent company focused on helping businesses of all sizes drive productivity and digitally transform their organizations. The platform's unique low-code interface enables users to create custom applications faster and easier without learning code. Today, QuickBase is used by more than 6,000 customers, including half of the Fortune 100, across a variety industries and use cases. The company was divested from Intuit in March 2016 and is backed by Welsh, Carson, Anderson & Stowe. For more information, please visit: www.quickbase.com.

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Appendix A: Composite Organization Description

For this TEI study, Forrester has created a composite organization to illustrate the quantifiable benefits and costs of implementing QuickBase. The composite company is intended to represent a US-based global organization and is based on characteristics of the interviewed customers.

› The organization has about 8,000 total employees across the globe.

› The annual revenue of the composite organization is around $1.4 billion each year.

› In its role to utilize technology to maximize efficiencies and improve processes across the organization, the composite organization's center of excellence worked in conjunction with IT to select a platform that could meet the needs of the business without putting additional stress on the IT organization.

› Prior to its investment in QuickBase, the composite organization primarily leveraged traditional development techniques like .Net and Java.

After an extensive RFP and business case process evaluating multiple vendors, the composite organization's center of excellence and IT organizations worked together to choose QuickBase and began deployment of the platform.

› The organization first deployed within its project management office, but the value of the platform began to spread. Soon, many different departments across the organization were using QuickBase to build applications to improve their day-to-day business processes in areas such as order management, supply chain management, and IT project management, among others.

› IT manages roles and permissions within the QuickBase platform, assigning different levels of access to the multiple users across the organization based on their needs. The center of excellence team works with the line-of-business users to train both citizen developers and the end users of the applications. Applications are primarily created by citizen developers, although occasionally they will lean on IT for expertise as needed.

› Each year, the organization uses QuickBase to build 55 net-new applications that are utilized throughout different departments across the organization. By the end of Year 3, the organization has a total of 138 applications, accounting for applications that are no longer used.

› The organization has around 2,000 licensed users of applications within QuickBase. On average, approximately 10 of those users are citizen developers who develop applications in QuickBase. These users fluctuate based on the needs of the organization. In addition, there are users who update the applications on an as-needed basis.

FRAMEWORK ASSUMPTIONS

Table 15 provides the model assumptions that Forrester used in this analysis.

The discount rate used in the PV and NPV calculations is 10%, and the time horizon used for the financial modeling is three years. Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult with their respective company's finance department to determine the most appropriate discount rate to use within their own organizations.

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TABLE 15

Model Assumptions

Ref.	Metric	Calculation	Value
X1	Hours per week		40
X2	Weeks per year		52
X3	Hours per year (M-F, 9-5)		2,080
X4	Hours per year (24x7)		8,736
X5	Annual fully loaded salary of traditional development resource		$120,000
X6	Hourly salary of traditional development resource	(X5/X3) Rounded	$58
X7	Annual fully loaded salary of citizen developer resource		$100,000
X8	Hourly salary of citizen developer resource	(X7/X3) Rounded	$48
X9	Annual fully loaded salary of end user resource		$60,000
X10	Hourly salary of end user resource	(X9/X3) Rounded	$29

Source: Forrester Research, Inc.

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Appendix B: Total Economic Impact™ Overview

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders. TEI assists technology vendors in winning, serving, and retaining customers.

The TEI methodology consists of four components to evaluate investment value: benefits, costs, flexibility, and risks.

BENEFITS

Benefits represent the value delivered to the user organization — IT and/or business units — by the proposed product or project. Often, product or project justification exercises focus just on IT cost and cost reduction, leaving little room to analyze the effect of the technology on the entire organization. The TEI methodology and the resulting financial model place equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization. Calculation of benefit estimates involves a clear dialogue with the user organization to understand the specific value that is created. In addition, Forrester also requires that there be a clear line of accountability established between the measurement and justification of benefit estimates after the project has been completed. This ensures that benefit estimates tie back directly to the bottom line.

COSTS

Costs represent the investment necessary to capture the value, or benefits, of the proposed project. IT or the business units may incur costs in the form of fully burdened labor, subcontractors, or materials. Costs consider all the investments and expenses necessary to deliver the proposed value. In addition, the cost category within TEI captures any incremental costs over the existing environment for ongoing costs associated with the solution. All costs must be tied to the benefits that are created.

FLEXIBILITY

Within the TEI methodology, direct benefits represent one part of the investment value. While direct benefits can typically be the primary way to justify a project, Forrester believes that organizations should be able to measure the strategic value of an investment. Flexibility represents the value that can be obtained for some future additional investment building on top of the initial investment already made. For instance, an investment in an enterprisewide upgrade of an office productivity suite can potentially increase standardization (to increase efficiency) and reduce licensing costs. However, an embedded collaboration feature may translate to greater worker productivity if activated. The collaboration can only be used with additional investment in training at some future point. However, having the ability to capture that benefit has a PV that can be estimated. The flexibility component of TEI captures that value.

RISKS

Risks measure the uncertainty of benefit and cost estimates contained within the investment. Uncertainty is measured in two ways: 1) the likelihood that the cost and benefit estimates will meet the original projections and 2) the likelihood that the estimates will be measured and tracked over time. TEI risk factors are based on a probability density function known as "triangular distribution" to the values entered. At a minimum, three values are calculated to estimate the risk factor around each cost and benefit.

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Appendix C: The Value Of An Application

High-Impact Applications

Users shared several use cases where their QuickBase applications made a large impact on their organization. For example, the business services organization told us about an application that was created to help it determine the layouts of its stores, a process that used to require hiring a company to go into each individual store, conduct measurements, and lay everything out. Now, using an application created in QuickBase, "district managers just run in and record that information quickly into an application. We recognized $1.1 million in savings from that alone." The organization also shared another application that it used within its legal real estate team that "already recognized $2.2 million in savings from helping them renegotiate contracts."

For the purposes of this case study, we took a conservative approach and assumed that any high-impact applications built have a benefit of about $230,000 each year for our composite organization.

TABLE 16

Benefit Of A High-Impact Application

Metric	Calculation	Value Each Year
Benefit of a high-impact application		$227,692.31

Source: Forrester Research, Inc.

Medium-Impact Applications

Much more common were applications that were used either across business groups or within large groups. These applications helped many users save time, such as the time spent to create reports. As one organization told us, "We've seen 70% to 80% reduction in the amount of time we are spending aggregating data to build our reports." Another organization told us about an application that helps users quickly enter customer information, saving many hours each month.

For the purposes of this case study, we considered a medium-impact application to be one that saved a work team of 20 people 8 hours each per month. The table below shows how this was calculated. The final benefit of a medium-impact application is $55,384.62 for our composite organization.

TABLE 17

Benefit Of A Medium-Impact Application

Metric	Calculation	Value Each Year
Hourly salary of medium-impact application user	$60,000 annual salary/ 2,080 working hours per year	$28.85
Number of hours saved per month due to application		8
Number of people using application per work team		20
Benefit of a medium-impact application	Hourly salary * hours saved each month * 12 months each year* size of work team	$55,384.62

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Low-Impact Applications

The most common applications were those used by smaller groups within teams, used to make a certain business process faster and make the team more productive. These types of apps help to make individuals more productive on their day-to-day tasks such as data entry. For the purposes of this case study, we considered a low-impact application to be one that improved the productivity of a 15-person team by 30 minutes each day. Examples include applications that help make data entry faster or help an employee find inventory more efficiently. Forrester also adjusts productivity savings by assuming that only 50% of this time saved is used for productive work. The table below shows how this was calculated. The final benefit of a low-impact application is $27,043.27 for our composite organization.

TABLE 18

Benefit Of A Low-Impact Application

Metric	Calculation	Value Each Year
Hourly salary of low-impact application user	$60,000 annual salary/ 2,080 working hours per year	$28.85
Number of hours saved per day due to application		0.5 hours
Number of people using application per work team		15
Percent productivity captured		50%
Benefit of a low-impact application	**Hourly salary * hours saved per day * 250 work days each year* size of work team * productivity captured**	**$27,043.27**

The final value of each type of application for the composite organization was calculated by taking the benefit of each application and subtracting the estimated cost to develop each application. These calculations are outlined below. We will use these calculations to help us understand the overall benefit of QuickBase within an organization.

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TABLE 19

The Average Value Of An Application Based On Impact

Ref.	Metric	Calculation	High-Impact App	Medium-Impact App	Low-Impact App
J1	Time to develop (weeks)		12	10	8
J2	Cost of development per week	$120,000 annual salary of development resource/52 work weeks	$2,307.69	$2,307.69	$2,307.69
J3	Cost to develop app	J1*J2	$27,692.31	$23,076.92	$18,461.54
J4	Benefit value of each application		$227,692.31	$55,384.62	$27,043.27
Jt	**The average value of an application based on impact**	**J4-J3**	**$200,000.00**	**$32,307.69**	**$8,581.73**

Source: Forrester Research, Inc.

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Appendix D: Reduced Time To Develop Applications With Traditional IT Resources Benefit

For the purposes of this case study, we focused on an organization that is primarily leveraging citizen developers to develop applications. However, it is important to note that there is still value in using QuickBase as a rapid application development platform when using traditional IT resources. The below calculation shows the cost savings per application when QuickBase is used by traditional IT developers.

TABLE 20

Cost Savings Of Using QuickBase With Traditional IT Resources

Ref.	Metric	Calculation	Year 1
XX1	Time to develop prior to QuickBase (weeks)		10
XX2	Annual fully loaded salary of traditional development resource		$120,000
XX3	Cost to develop one application prior to QuickBase	XX1*(XX2/52)	$23,077
XX4	Time to develop after QuickBase (weeks)		2
XX5	Annual fully loaded salary of citizen developer resource		$120,000
XX6	Cost to develop one application after QuickBase	XX4*(XX5/52)	$4,615
XX7	**Cost savings per app**	**XX3-XX6**	**$18,462**

Source: Forrester Research, Inc.

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Appendix E: Glossary

Discount rate: The interest rate used in cash flow analysis to take into account the time value of money. Companies set their own discount rate based on their business and investment environment. Forrester assumes a yearly discount rate of 10% for this analysis. Organizations typically use discount rates between 8% and 16% based on their current environment. Readers are urged to consult their respective organizations to determine the most appropriate discount rate to use in their own environment.

Net present value (NPV): The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.

Present value (PV): The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total NPV of cash flows.

Payback period: The breakeven point for an investment. This is the point in time at which net benefits (benefits minus costs) equal initial investment or cost.

Return on investment (ROI): A measure of a project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits minus costs) by costs.

A NOTE ON CASH FLOW TABLES

The following is a note on the cash flow tables used in this study (see the example table below). The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1. Those costs are not discounted. All other cash flows in years 1 through 3 are discounted using the discount rate (shown in the Framework Assumptions section) at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations are not calculated until the summary tables are the sum of the initial investment and the discounted cash flows in each year.

Sums and present value calculations of the Total Benefits, Total Costs, and Cash Flow tables may not exactly add up, as some rounding may occur.

TABLE [EXAMPLE] Example Table				
Ref. **Metric**	**Calculation**	**Year 1**	**Year 2**	**Year 3**

Source: Forrester Research, Inc.

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Appendix F: Endnotes

[1] Forrester risk-adjusts the summary financial metrics to take into account the potential uncertainty of the cost and benefit estimates. For more information, see the section on Risks.

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