

Utilizing Construction Project Management Technology to Create Best-in-Class Organizations

An independent user study conducted by FMI analyzing the impact to organizations using construction project management software from Meridian Systems



MANAGEMENT CONSULTING • INVESTMENT BANKING
for the CONSTRUCTION INDUSTRY

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Introduction

Since its founding in 1993, Meridian Systems has sought to provide validation and educational insight into the value of construction project management technology. As its customer base has grown, Meridian has profiled individual customers in order to chronicle the unique business challenges surrounding project controls, and how project management solutions from Meridian have helped to overcome these challenges.

After 15 years of providing solutions, Meridian sought to commission a specific research study that would capture an aggregate profile of its installed base, and to articulate the organizational and project-level business benefits received by these companies.

In February 2008, Meridian commissioned FMI Corporation (FMI) to conduct a broad survey of its customers to independently assess the top business drivers and the resulting benefits from implementing construction project management technology. Additionally, select customers participated in in-depth interviews in order to provide further details on their use of project management technology. The purpose of this report is to share these findings with other Meridian customers, as well as to provide a resource for other project-driven organizations currently researching project management applications.

Executive Summary

FMI jointly developed the survey questionnaire with Meridian and distributed it electronically to a random sample of 6,757 Meridian customers in March 2008. Slightly more than 300 customers responded (4.5% response rate). The results were analyzed by FMI, and no individual responses were shared with Meridian.

Several important conclusions come to light, but it's important to start with an understanding of the most common business challenges that originally drove the decision to implement a formal capital project management solution. For most Meridian customers, the lack of document control and the need to standardize project management practices across their organizations were key drivers. This is not surprising, as additional FMI research identified document control as one of the greatest project management challenges for contractors.

Survey results also suggest that respondents experienced overall improvement in project controls due to better communication; a result of reduced turnaround times and access to more accurate data and information. Moreover, respondents indicated a strong brand loyalty and a strong likelihood that they would recommend Meridian solutions to their colleagues.

Criteria

While several solution criteria can drive the software selection process, when asked which criteria were most important in choosing a project management system, Meridian customers most frequently responded with 1) *flexibility*, 2) *ease of use* and 3) *functionality*. Meridian appears to have met these requirements, as the number of users per organization averages almost 200 (both internal and external users). For some customers, the numbers range in the thousands.

More than 80% of respondents cited *Contract and Change Management* and *Document Management* as the most highly used functions within their project management solution. The next most commonly used functions are *Project Cost and Budget Management* and *Field Administration* (used by approximately two-thirds of customers surveyed).

Benefits

The benefits most enjoyed by customers implementing a Meridian solution include *improved project control* and *standardization of project management practices*, precisely the business drivers cited above that led customers to implement a formal project management system. More *timely and accurate communication/reporting* and *enhanced staff productivity* were also realized.

The study also provides in-depth detail on both project- and organizational-level benefits. At the project level, the most beneficial aspects of Meridian solutions were: 1) *Accurate and timely reporting on project performance*, 2) *Reduced turnaround time on communications/approvals*, and 3) *Increased staff productivity*. At the organizational level, the most beneficial aspects of Meridian solutions were cited as 1) *Improved project control by having one central place for all project information*, and 2) *The ability to implement standard project management processes across the organization*.

Return On Investment

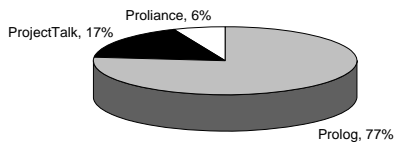
Almost two-thirds of survey respondents estimated some dollar savings as a result of implementing a Meridian solution. The annual return on investment for these customers averages more than \$200,000 – savings that increase over time the longer the solution has been in use. For some organizations, annual savings had reached in excess of \$1 million dollars.

When asked about future plans for their project management solution, the highest priorities for those customers responding to the survey were to 1) *Extend our project management system into other software systems within our organization*, and 2) *To utilize more features of modules that we are not using today*.

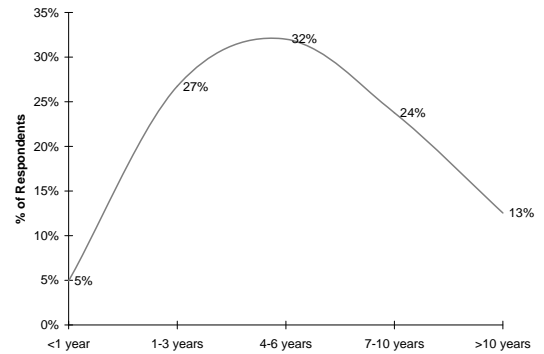
Customer Demographics

Respondents are most active in the nonresidential building segments (primarily office and commercial). The survey results are not skewed by a disproportionate number of small or large firms. The survey respondents report capital improvement and/or construction project volumes ranging from less than \$50 million to more than \$500 million in almost equal distribution. Greater than two-thirds of customers have used their Meridian solution for four or more years. The following exhibits illustrate the most common customer characteristics for those responding to the survey.

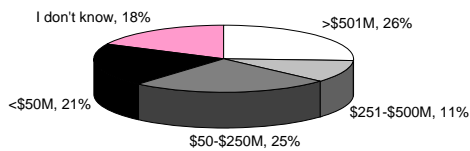
Which of the following Meridian solutions does your organization use? (n=302)



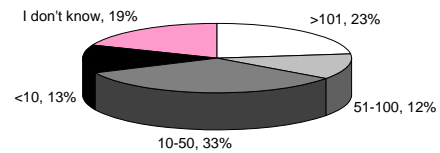
Length of time the solution has been in use (n=303)



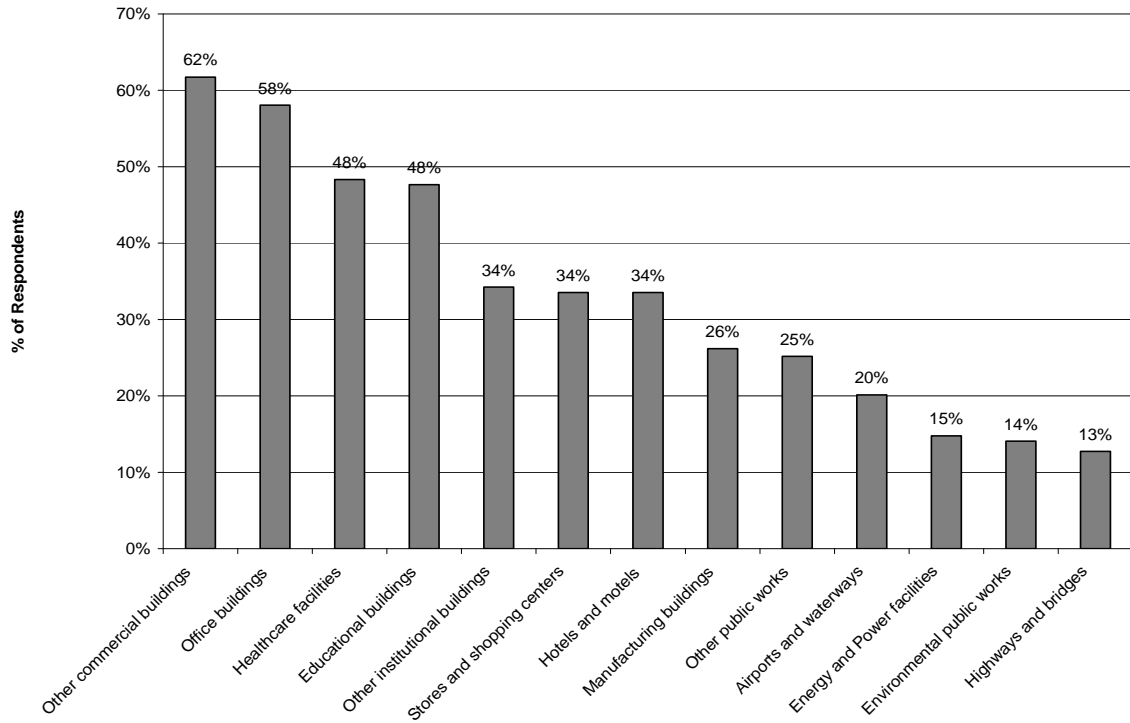
Capital Improvement and/or Construction Project Volume Last Year (\$) (n=295)



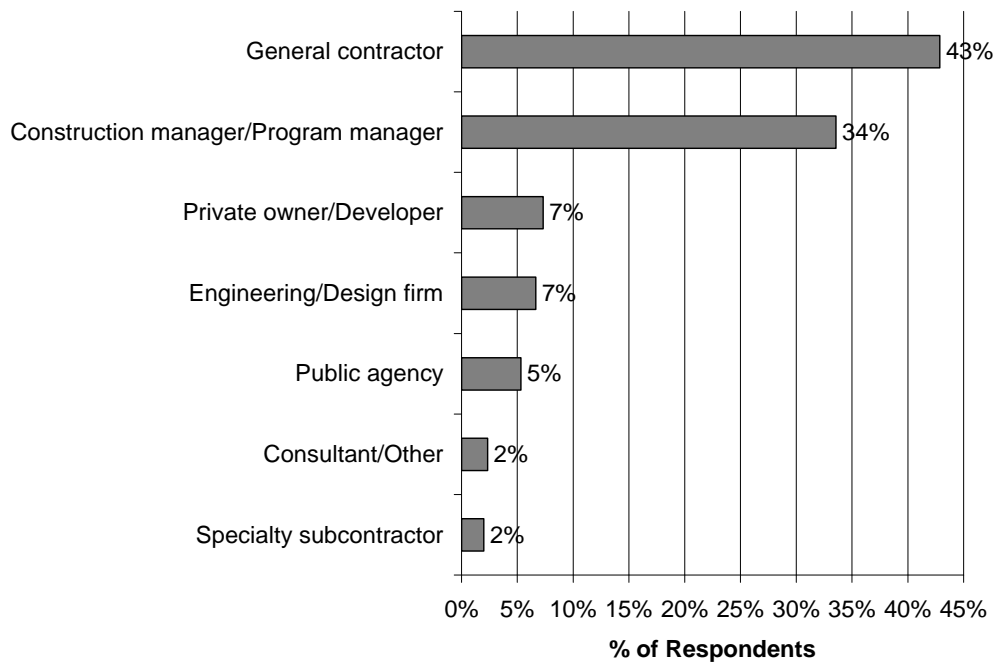
Capital Improvement and/or Construction Project Volume Last Year (#), (n=294)



Construction Segments Served (n=298)



Customer Organization Description (n=301)

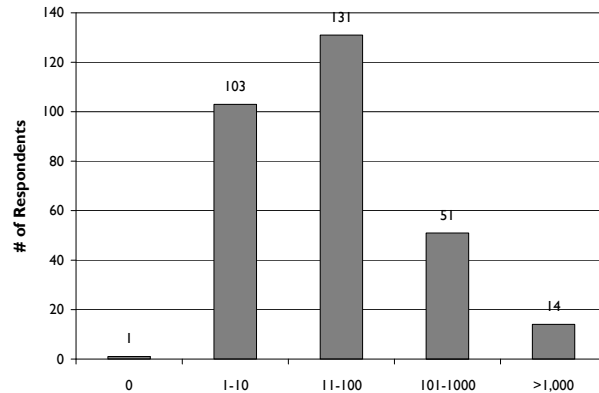


Project Management Ecosystem

Organizations adopting formal project management systems must support both their internal stakeholders as well as their external supply chain and vendor community.

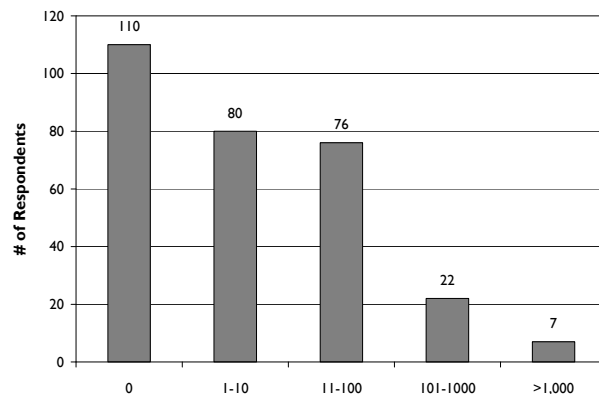
The average number of internal Meridian solution users per organization totals close to 200. For some customers, the actual number ran in the several thousands, with some as high as 5,000. This demonstrates the scalability of the solutions provided by Meridian, and potentially, the ease of implementation and use.

Estimated Number of Solution Users Internal to the Organization (n=300)



Likewise, the number of outside collaborating companies (e.g., owners, architects/engineers, contractors, subcontractors) who accessed the customer's solution shared similar characteristics with the majority having between one and 100 users.

Estimated Number of Outside Collaborating Companies Using the Solution (n=295)

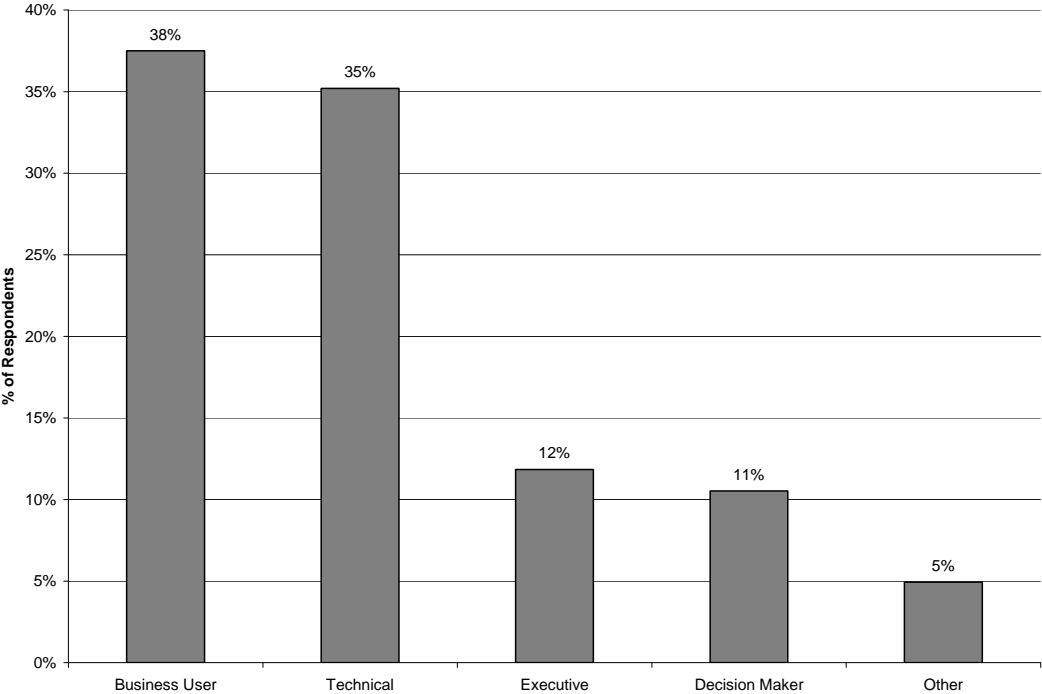


Individual Question Detail

Which one of the following best describes your role in the organization?

- Technical: I manage the implementation of Meridian solutions within my organization
- Business User: I am a user of the solution (e.g., project manager, engineer, other project team member)
- Executive: I am an executive stakeholder that oversees project performance
- Decision Maker: I was the technology decision maker or lead the technology selection process

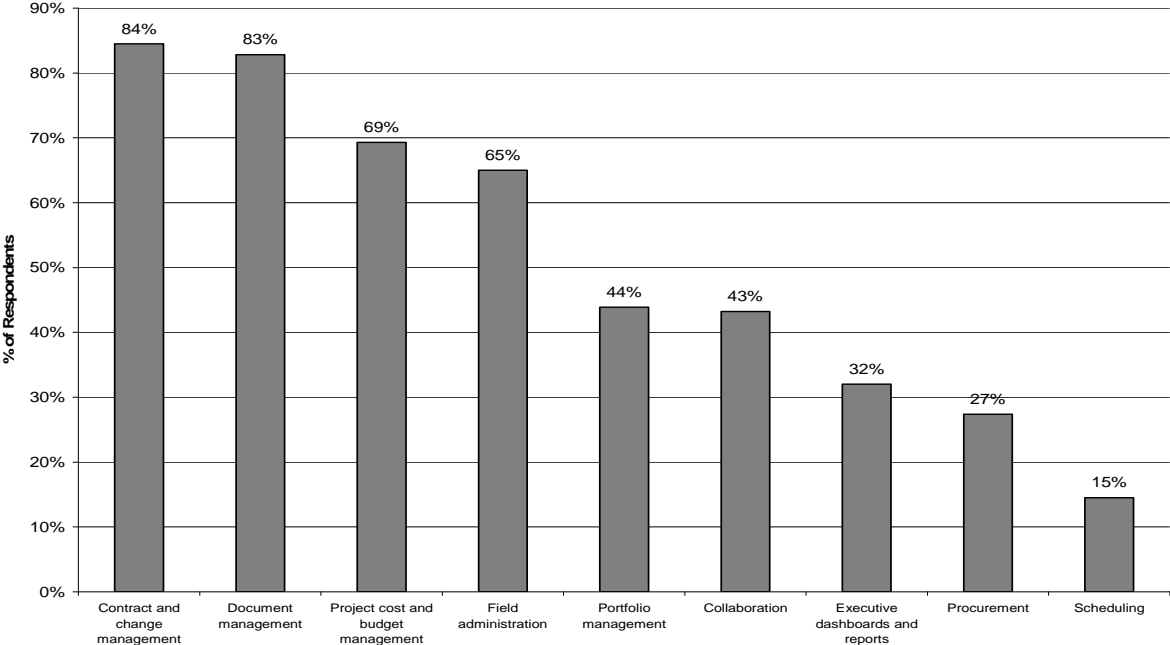
Survey Respondent Role (n=304)



Indicate which functionality areas below your organization uses on a regular basis.

More than half of all respondents indicated using the following four functionality areas: 1) Contract and change management, 2) Document management, 3) Project cost and budget management, and 4) Field administration.

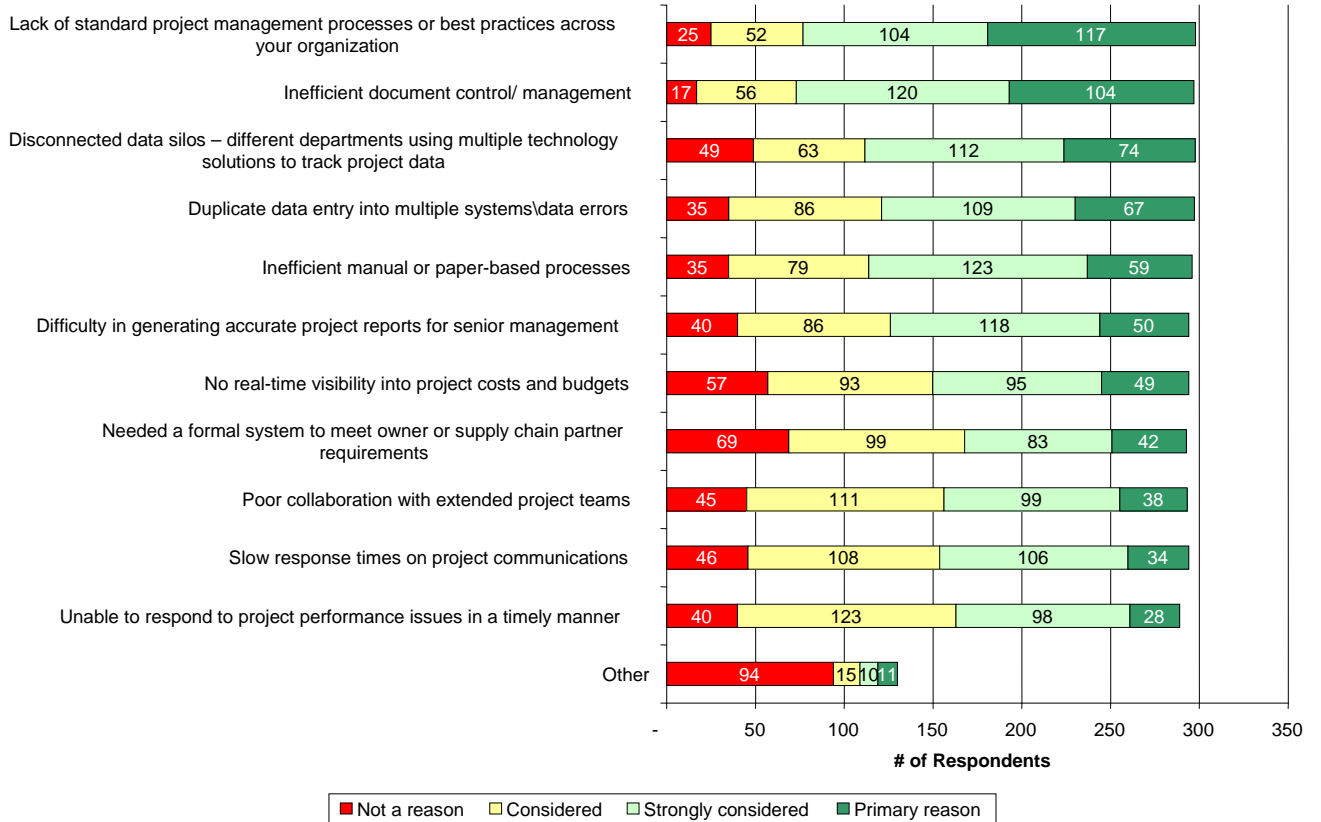
Functionality Areas Used on a Regular Basis (n=303)



To what extent did each of the following business challenges influence your organization to select a formal capital project management solution?

Survey respondents attempted to address multiple business challenges with a formal capital project management solution. However, the two most often cited as a primary reason included 1) Inefficient document control and management, and 2) Lack of standard project management processes or best practices across the organization.

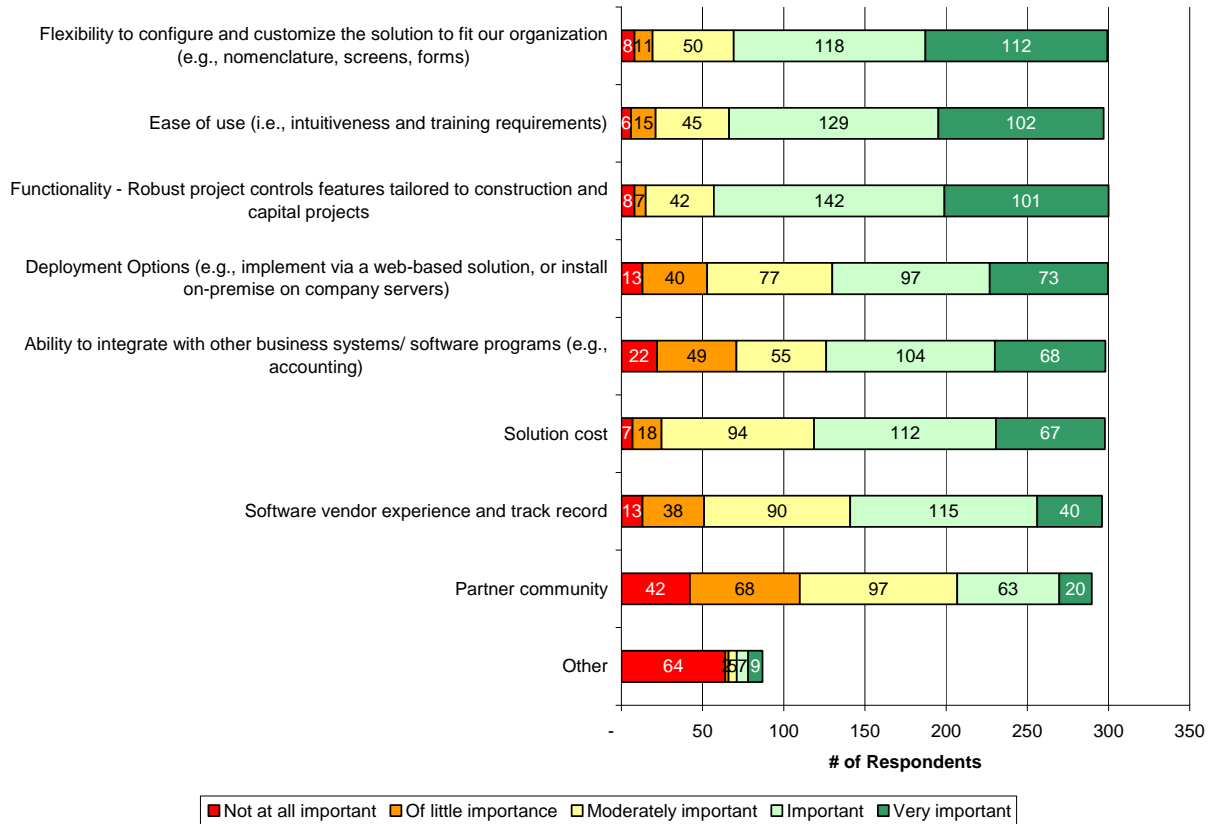
Business Challenges Influencing the Decision to Select a Formal Capital Project Management Solution



How important were the following software characteristics when selecting a specific solution?

Those solution criteria described as “Very important” by more than one-third of survey respondents included 1) Flexibility to configure and customize the solution to fit our organization (e.g., nomenclature, screens, forms), 2) Ease of use (i.e., intuitiveness and training requirements) and 3) Functionality— Robust project controls features tailored to construction and capital projects. This can be interpreted as the need for a customizable solution rather than a rigid, one-size-fits-all program. The number of users reported by these customers would seem to suggest that the Meridian solutions meet these criteria.

Criteria Used when Selecting a Specific Solution



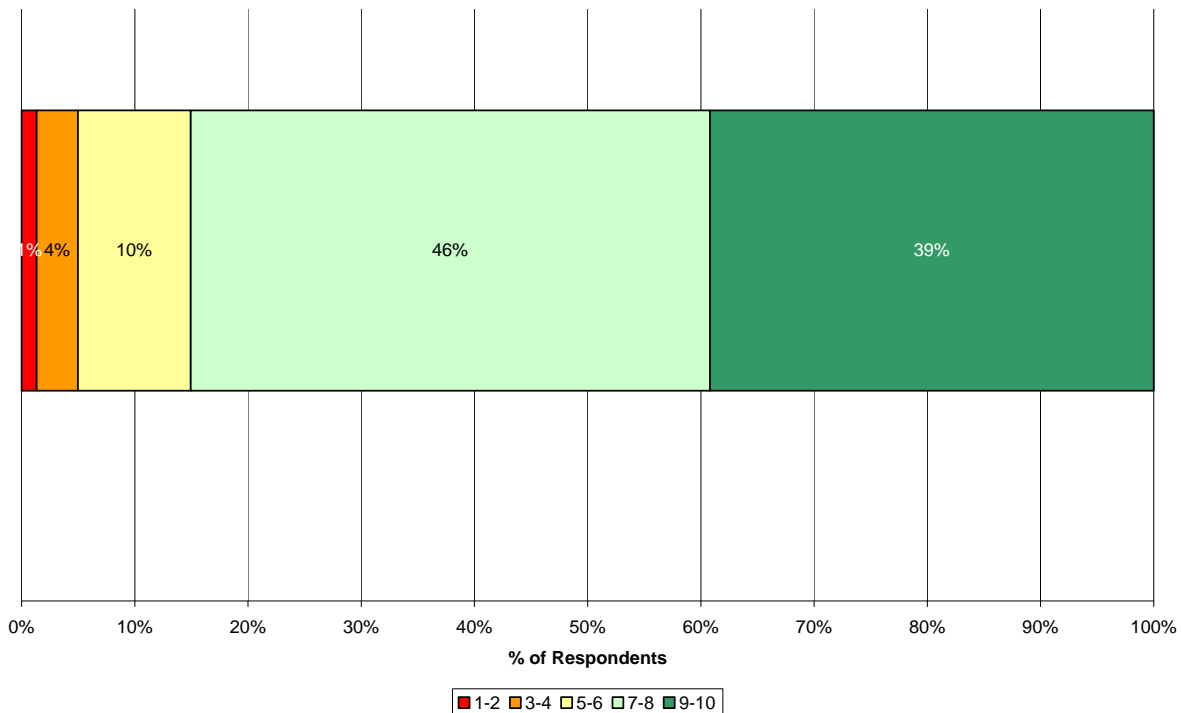
What led you to select Meridian over the other option(s) you considered?

Category of Response	Number of Like Kind Responses (n=231)
Prior experience with Meridian Systems	22
Determined to be a user friendly solution	17
Flexibility and the ability to customize the solution	16
Recommended by others	13
Meridian Systems is considered to be the industry standard	12
Price	8
Meridian's reputation in the industry	7
Client requirement	7
Product features and functions	7
Customer service	4
Quick implementation	1
Advertisement	1
Presentation	1
Other one-off comments or no discernable reason given	115

How likely are you to recommend Meridian to a friend or colleague?

Nearly 40% of customers responding to this survey indicated a very high likelihood to recommend their Meridian solution to their friends and colleagues (score of 9 or 10 on a 10-point scale: 1=Not at all likely to recommend, 10=Very likely to recommend). By comparison, fewer than 10% demonstrated potential dissatisfaction with their solution by indicating their likelihood to recommend Meridian to others with a four or less on the same scale.

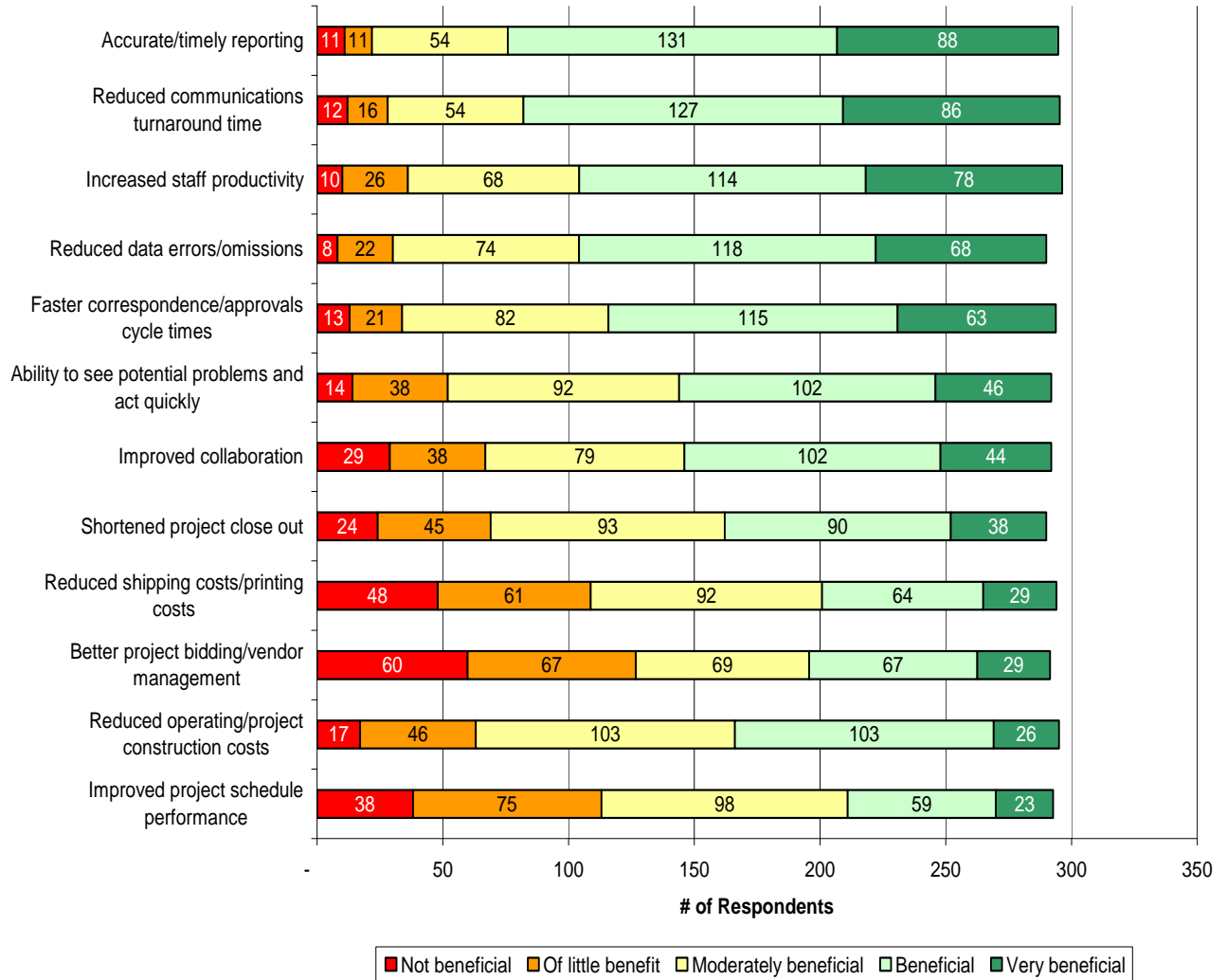
Likelihood to Recommend Meridian to a Friend or Colleague, (n=301)



Describe the project-level benefits your organization has received from using a formal capital project management system.

Greater than 25% of survey respondents consider 1) Accurate and timely reporting on project performance, 2) Reduced turnaround time on communications/approvals (i.e., change orders, RFIs, submittals) and 3) Increased staff productivity (do more with existing or less staff/reduced man-hours per project) as the most beneficial aspects of their Meridian solution at the project-level. Considering the business challenges and solution criteria previously expressed, it appears that many find their Meridian solution to be serving their needs as expected.

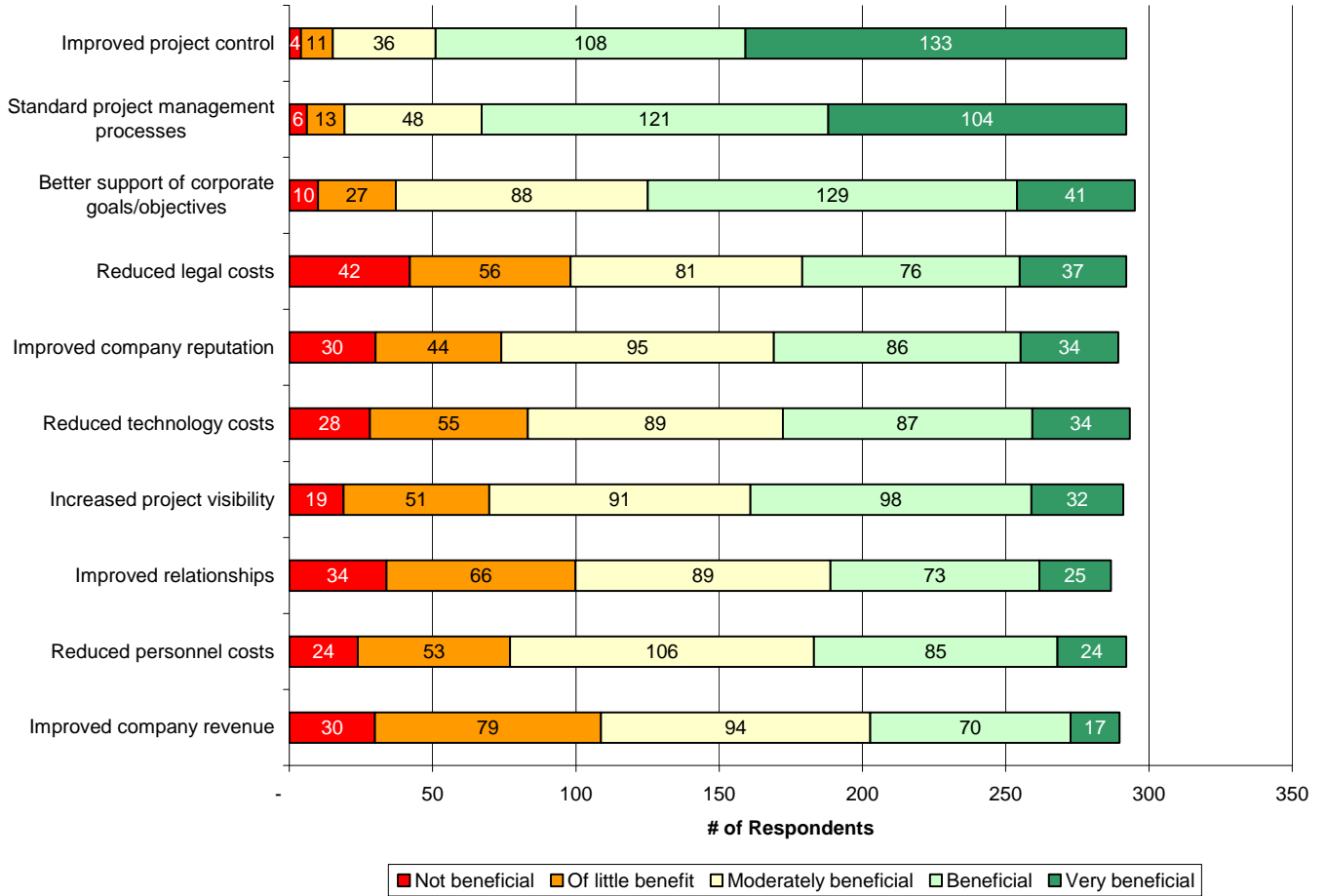
Project-Level Benefits of the Meridian Solution



Describe the organizational-level benefits your organization has received from implementing a formal capital project management system.

The organizational-level benefits most realized by customers are 1) Improved project control by having one central place for all project information and 2) The ability to implement standard project management processes across the organization. Greater than one-third of survey respondents indicated as such. Again, this demonstrates that the business challenges most organizations were attempting to solve were addressed by their Meridian solution.

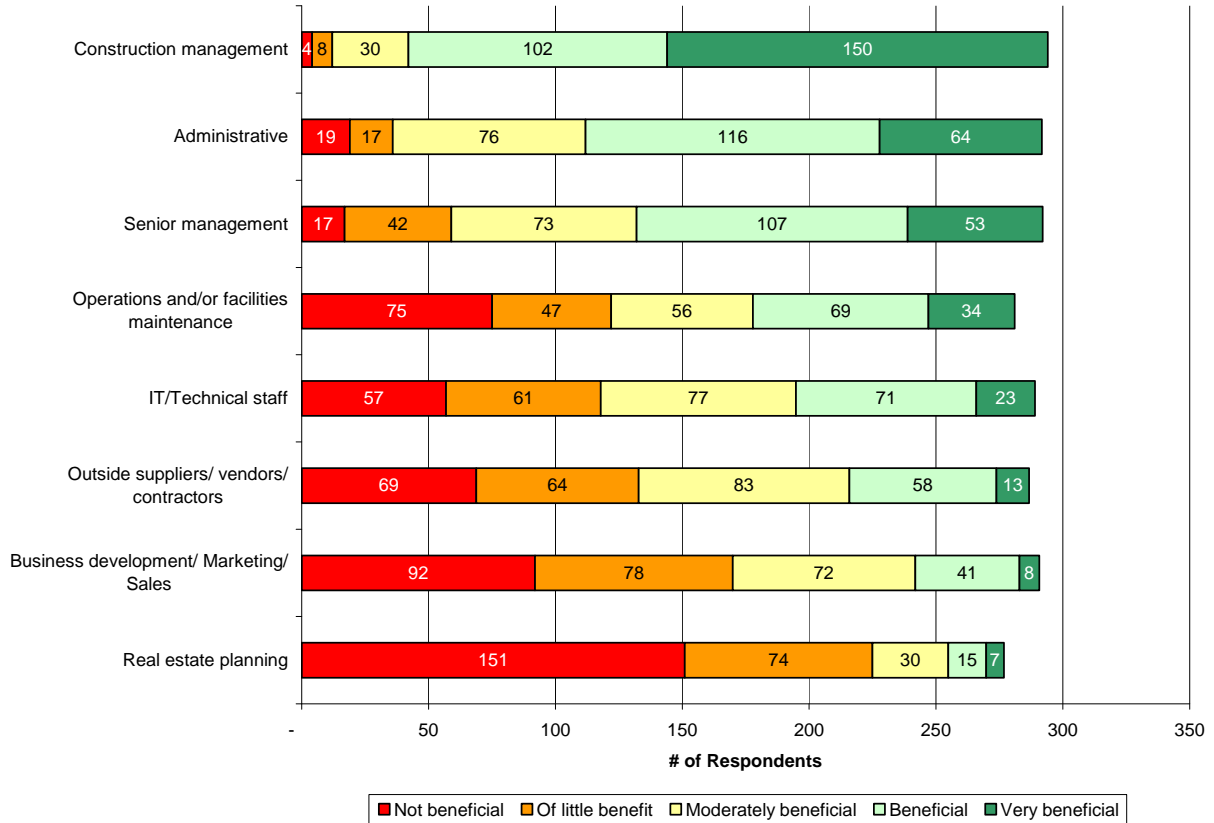
Organizational-Level Benefits of the Meridian Solution



How beneficial has your formal capital project management software solution been to the following groups?

Of the eight internal stakeholder groups represented, three groups received a higher percentage of “very beneficial” of “beneficial” responses; they are 1) Construction management (85.7%), 2) Administrative (61.6%), and 3) Senior management (54.8%).

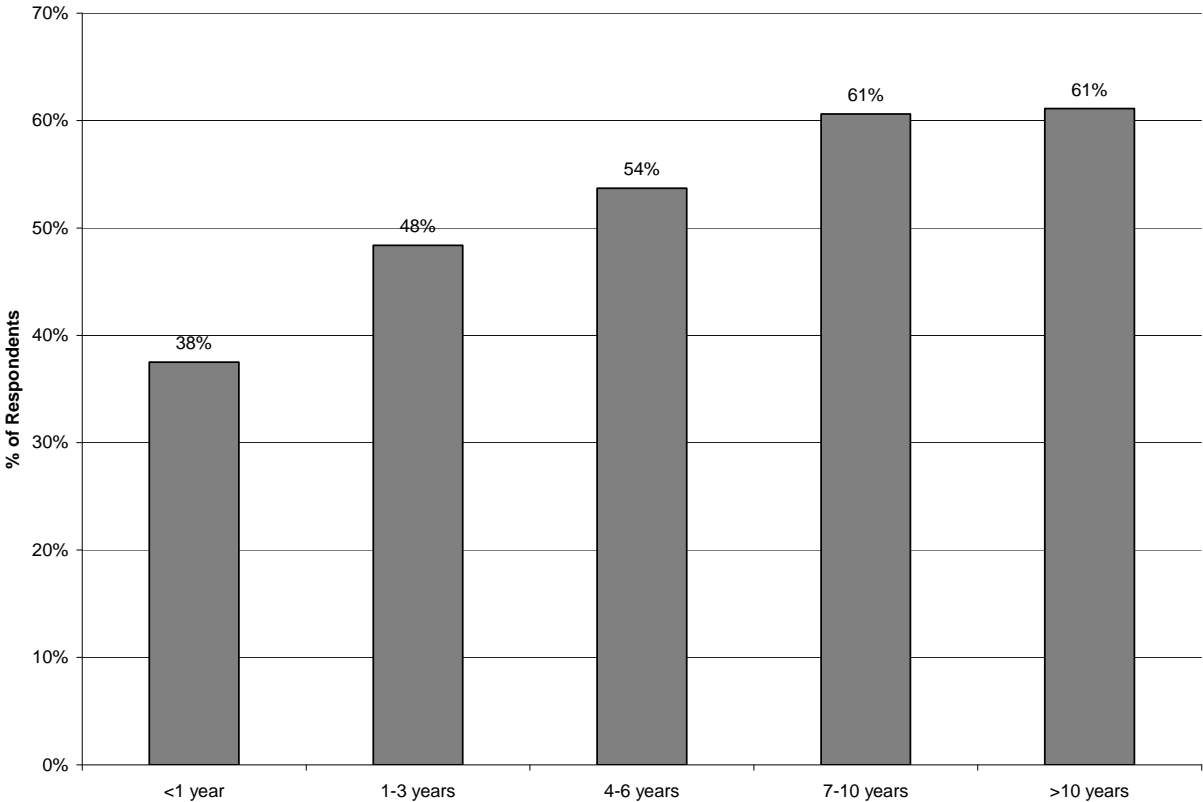
Customer Groups Benefiting from the Meridian Project Management Solutions



What do you estimate to be the annual dollar savings achieved with your Meridian solution?

Estimating the precise annual dollar savings of implementing a formal capital project management solution is certainly a difficult exercise. However, almost two-thirds of survey respondents noted some dollar savings (after the removal of potential data outliers). Of these customers, the average annual dollar savings was \$230,000. Savings ranged from as little as \$1,000 to as much as \$5 million for this subset. When compared to the length of time that the Meridian solution has been in use, the estimated annual dollar savings achieved increases with the length of time in use. Almost 40% of customers with less than one year of use reported annual savings of \$10,000 or more. By the time the solution has been used four to six years, more than 60% can claim such savings.

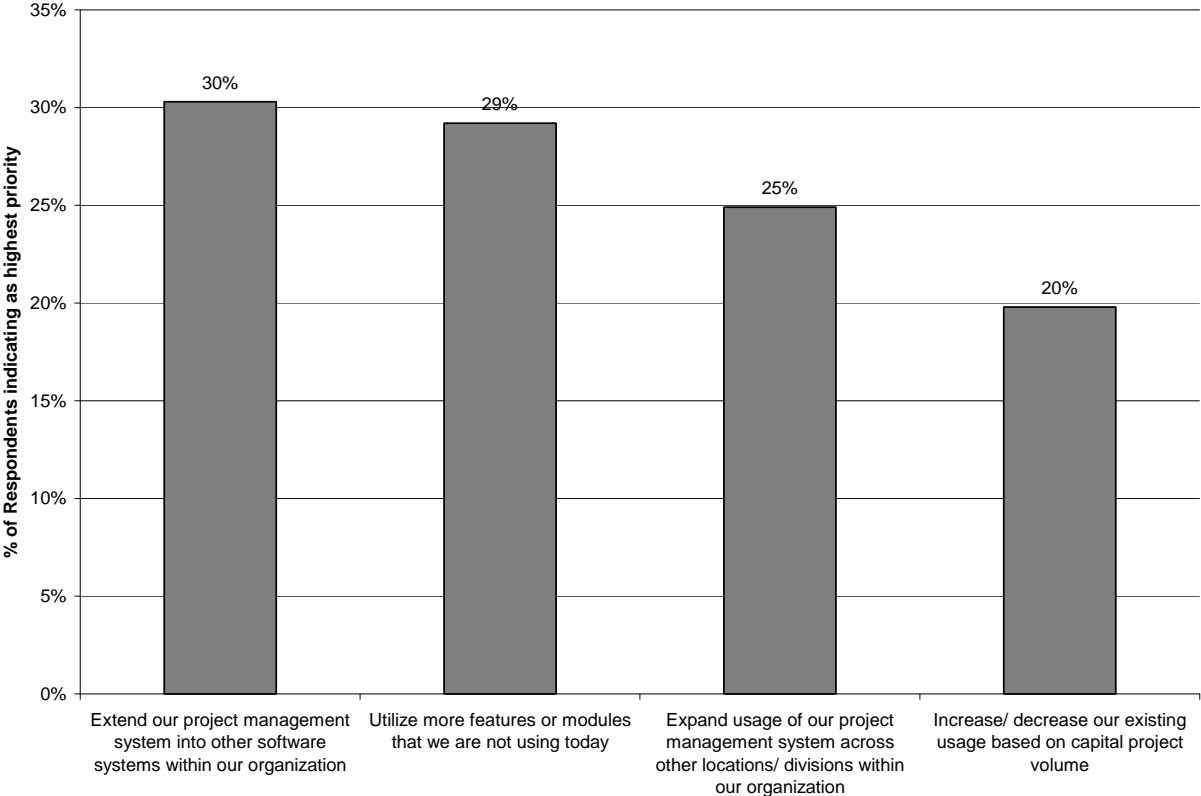
Percent of Survey Respondents that Estimate \$10,000 or More in Annual Dollar Savings (ROI) Resulting from Use of the Meridian Project Management Solution by Length of Use (n=144)



How high or low a priority are the following items for your formal capital project management software solution in the future?

For most survey respondents, the two highest priorities for continued use of their Meridian solution are 1) Extend our project management system into other software systems within our organization and 2) Utilize more features or modules that we are not using today.

Future Capital Project Management Software Solution Priorities



Meridian Customer Profiles:

Select representatives from Alberici Constructors, Inc., CB Richard Ellis, inc., Haskell, The Illinois Tollway and Ryan Companies US Inc. participated in in-depth interviews in order to provide more specific details on their use of project management technology. Read the following to learn how other project-driven organizations are currently benefiting from their project management applications.

Alberici Constructors, Inc.

Alberici Constructors, Inc. (Alberici) is one of the 100 largest contractors in the United States. Founded 90 years ago as a concrete company, Alberici has since grown to more than \$800 million in revenue and approximately 400 administrative and project staff across North America. The company serves a variety of market segments, ranging from manufacturing to energy to health care.

Although Meridian's Prolog solution was originally purchased by Alberici almost six years ago, it was not implemented as a standard practice until 2006. Prior to its implementation, Alberici used a cacophony of solutions, ranging from Expedition and Constructware to spreadsheets and a project management tool developed by the company's accounting vendor. The decision to go with Prolog was not a difficult one for Alberici. In addition to seeing Prolog as the industry leader, internal company champions of the solution liked the ease of customization of Alberici's business processes. "This may seem insignificant, but the ability to change a label on a report — for example, in Canada it's provinces not states — and add new fields was a big deal for us. With some of the other solutions we looked at, this was either complicated or impossible," said Brooks Williams, (Director of Project Controls). In addition, the support provided by Meridian had a lot of influence on the decision.

Meridian's web-based collaboration capability is an important feature to Alberici. "[being web-based] allows us to work directly with our vendors and subcontractors in real time," commented Williams. He added, "Because we can automate notices to our subcontractors, we spend less time chasing people for information." Furthermore, RFIs and other documents can be sent electronically, and because Alberici's subcontractors enter all of the required information in this format, there is no repeated effort on the company's part.

The greatest benefits that Alberici associates with its Prolog solution are the cost and time savings resulting from an automated system. "We generate all of our subcontracts in Prolog. Since we now e-mail these, we don't incur any mailing or shipping fees," said Williams. But savings of this nature represent just one side of the coin. "From a cost tracking perspective, accounting may be able to tell you what happened two weeks ago, but Prolog tells you what is happening today. If there's a site issue, we can go to Prolog and forecast the cost to correct it. Better cost reporting leads to better cash flow," said Williams.

The time savings are realized largely in terms of not guessing which spreadsheet or template is the most current or correct version. "The efficiency of [Prolog] is tremendous. We were able to get rid of a lot of spreadsheets that we were using. Questions about who has the latest version or what errors may exist in the formulas because of some random change are gone.

Reduced risk exposure was also mentioned as a benefit of having Prolog in place. "By having everything in a central location and backups run every night, if a legal issue were to arise, there's less hunting for information. This has forced some beneficial business protocols.

At this time, Williams believes Prolog is a requirement. "We couldn't compete without it. Our clients realize the benefit of a contractor that has the communication and controls systems in place. It provides peace of mind," said Williams.

CB Richard Ellis Group, Inc.

CB Richard Ellis Group, Inc. is a global commercial real estate services company. In addition to traditional real estate services (e.g., leasing, property acquisition and disposition), it also offers project management, facilities maintenance and related services to its clients and properties. Since its establishment more than 100 years ago, the company has grown to more than \$6 billion in annual revenue and managing more than 5,000 projects.

CB Richard Ellis (CBRE) incorporated Meridian's Proliance solution with the acquisition of Trammel Crow Company. At CBRE, Proliance has been in use for approximately one year. Prior to the acquisition of Trammel Crow and the integration of Proliance, CBRE did have experience with Meridian, using its Prolog solution. Proliance is currently used to support CBRE's project management of its global corporate accounts.

The decision to move to Proliance was largely influenced by the solution's ability to integrate with the Microsoft.NET technology platform. Proliance's quick applications reduce the level of problems experienced with prior solutions. Moreover, CBRE was concerned with the ease of deployment of any new solution and found Proliance met their expectations. John Whitt, (Product Management Director) CBRE said, "We're probably at the 90% mark in terms of deployment. Introducing several new tools is challenging, but we've been pleased with what we have accomplished with Proliance so far."

Proliance Office Business Applications (OBA) are at the core of CBRE's use of the solution. "From a contract standpoint, the Proliance SmartDoc OBAs allow us to spell out the specifications of our vendor contracts and then easily upload it into Proliance," added Whitt. The control this gives CBRE is considered a significant benefit. Risk exposure on projects is greatly reduced. "The way the solution works, a project manager cannot over commit against the budget. Invoices are contained, and we always know our exposure," he said.

In addition to increased project control and reduced risk exposure, Whitt believes that having Proliance aids CBRE's business development efforts and client management. Whitt commented "The fact that we have what we consider to be the best in class [capital project management software solution] available to our clients is a large part of our business development model. Our clients expect this of us." He also noted that technology is increasingly a key component of CBRE's client requests and reporting procedures are an important part of any project.

Although Whitt could not estimate a hard dollar return on investment in Proliance, he did say that the greatest successes have been realized in the integration of various forms and data sources and the robustness and timeliness of reporting (e.g., schedules, budgets) for users of the solution. The next challenge, according to Whitt, is getting CBRE's third party vendors to act likewise in their capital project management software solution integration.

Haskell

Haskell bills itself as “America’s Design-Build Leader.” Founded more than 40 years ago, it has become one of the leading proponents of design-build construction in the United States, providing planning, architectural, engineering, construction, program management, real estate, financing and facility management services on a single-responsibility basis. Haskell reports annual revenue of \$750 million and employs 1,250 people. In addition, it has completed more than 1,200 projects.

Haskell has been using Meridian capital project management solutions for more than 10 years. As Susan McDowell described it, “We had a senior project manager discover [Meridian] with Super Prolog 1.0.” In the beginning, the Meridian solutions were used in small pockets. About eight years ago, Prolog became Haskell’s corporate standard for project management software. Now, all projects valued greater than \$1 million use Prolog for all commitments and document control (i.e., RFIs, meeting minutes, general transmittals). Other functions of the solution are being added as well. For example, Prolog has been adopted by almost 25% of Haskell’s project staff for producing field purchase orders.

The decision to incorporate Prolog into Haskell’s project management approach began with a group of the company’s project managers attempting to develop an internal manual that incorporated several of their best practices. Microsoft Excel and Word were being used for cost control and other project management functions at the time, which created obstacles to standardizing best practices across the company, due to the ease of program manipulation. Prolog, it was determined, provided the solution they needed. As a result, Haskell’s project managers have become more efficient and self-sufficient setting up contracts. Pricing, scope and inclusions are built into the Prolog solution, eliminating the need for a lot of administrative oversight (required with Word). By centralizing and standardizing these practices with Prolog, Haskell has also found that having a project baseline allows them to operate with a much more interchangeable and responsive staff.

Additional benefits of using Prolog include greater visibility into projects, more controlled project response and lower operating costs. Haskell, like most contractors, has standard terms and conditions for its subcontractors. Because these terms and conditions reside within Prolog and are incorporated into all contracts, any exceptions to them require a change order to be written or some other formal notification. As a result, these exceptions or additions/deletions become much more visible.

Although the exact return on investment in Prolog is unknown, McDowell said, “It does save us money. The scalability of the program allows us to move people on and off project teams without any effort. Because it is web enabled, this works even for our people that aren’t in the home office. It would be much more of a capital expense if we were trying to run something ourselves in-house.”

“I’m not sure that [Prolog] has made our response time faster, but it is more controlled. In the past, if there was an urgent question from the field, they’d fax or walk it in. These could be misplaced or lost. Prolog allows us to track these questions and answers better, not necessarily any faster, but it does save time in the overall process,” said McDowell.

Illinois Tollway

The Illinois Tollway was established in 1953. Today, the Tollway serves 1.4 million drivers every day on 286 miles of road. Interestingly, the Illinois State Toll Highways are the only toll highways within the United States that accept pennies for payment in automatic toll lanes. The reason commonly given for this is that Abraham Lincoln appears on the United States one cent piece, the penny, and Illinois is known as the "Land of Lincoln."

The Tollway uses Proliance from Meridian Systems to reduce turnaround time on communications and approvals and improve access to project paperwork and forms.

The Tollway has nearly 150 projects. The need to share information across project boundaries is critical. According to Meridian Systems' customer survey data, inefficient document control and management is one of the most common business challenges facing Meridian Systems' customers. Prior to choosing Meridian Systems, The Tollway was looking to help improve its situation with more accurate and timely reporting on project performance across project boundaries.

In addition, The Tollway was looking for a system that could be implemented and hosted offsite, external to the Tollway. The system needed to be remotely accessed and quickly implemented. As a result, in 2006, The Tollway developed a Request for Proposal (RFP) for a web based software system and had three respondents. Originally, Meridian Systems' Proliance was actually the number two selection. After six to nine months of using its initial selection, The Tollway decided to abandon its first choice and switch to Proliance.

Since switching systems, the Tollway has realized several of the system's benefits, including reduced turnaround time on communications and approvals and improved access to project paperwork and forms for users on project sites. According to the Tollway, "The web-based system has become very effective for communicating messages to our project teams. It provides us with a message that the communication has been received and opened by the recipient." In addition, "We have seen Requests for Information (RFIs) and project documentation and communication timelines dramatically decrease. RFIs and issues resolution have gone from multiple weeks to a few days. We are almost responding to questions in a real-time environment."

As may be expected, the estimated annual dollar savings achieved with Proliance increases with the length of time the solution has been in place. Success with the Proliance system has led the Tollway to consider further system offerings. Currently, the Tollway is reviewing the possible addition of the budget/cost module for Proliance. It is assumed that the extended utilization of the Meridian Systems solutions over time is a likely influence on the increasing annual dollar savings. The implementation of this Proliance module may help the Tollway realize the old saying that, "A Penny saved, is a penny earned."

Ryan Companies US, Inc.

The Ryan Companies US, Inc. is a third-generation construction company headquartered in Minneapolis, Minn. The company was founded more than 65 years ago as a small northern Minnesota lumber company. Throughout the generations, the style of leadership at Ryan has remained remarkably true to the nature of the family-trustworthy, fair and entrepreneurial. Ryan has grown and changed to fit the ever-expanding opportunities of the business and industry. From building a \$4,500 house in Hibbing, Minn., to managing multimillion-dollar premier projects around the country for companies like Target Corporation, Deere & Company, Ford Motor Company, Mercy Medical and U.S. Bancorp. The company is #63 on ENR's 2007 Top 400 Contractors list.

Prior to 2007, Ryan Companies US, Inc. (Ryan) did not have a centralized project management system. This lack of a centralized system made serving customers in more than 150 cities difficult. "Our System was made up of spreadsheets and processes that we had made-up over the years so we had to centralize it and make it more consistent," says Ryan's Mike Ernst, ERP Project Director. As a result, Ryan implemented the first phase of Proliance in April 2007 and implemented the second phase in January 2008.

According to survey respondents, a lack of standard project management processes or best practices across the organization is a common business challenge faced by Meridian Systems customers. Ernst states, "At the time we implemented the system, we wanted consistent controls in place and an integrated solution with our accounting software to increase efficiencies."

In addition, Ernst explains, "The ease of use for end users is also very important." Flexibility, ease of use and functionality are the most important criteria when selecting a specific capital project management solution. More than one-third of survey respondents listed ease of use as "Very important" when making their purchase decision.

Proliance's ability to standardize project management processes across the organization has led to increases in work consistency and ultimately staff productivity at Ryan. "We have the ability to infuse new people into jobs as necessary. They can come into a system that is very similar structurally to their last job," says Ernst. Additional project-level benefits of Proliance for Ryan include improved accountability and tracking of cost issues.

Estimating the precise annual dollar savings of implementing a formal capital project management solution can be difficult. However, Ryan has been able to capture some of these savings. Ernst states, "We have noticed a reduction in hard costs on plan printing. On one job, we are going to save \$20,000 to \$25,000." Beyond that, Ernst has even bigger goals for Proliance. "We are trying to accomplish \$3.1 million annually in cost avoidance over the next three years."