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IDC VENDOR SPOTLIGHT

Bridging the Technology Gap: The Role of Infrastructure Life-Cycle Management in Controlling Risk and Improving Operations

Adapted from *Worldwide Project and Portfolio Management for New Product Development and Introduction 2005 Vendor Analysis: A First Look at Vendor Strategies and Opportunities* by Gisela D. Wilson, IDC #204730

Sponsored by Meridian Systems

This IDC Vendor Spotlight reviews the emerging market for infrastructure life-cycle management (ILM) applications and the impact this technology is having on program management at engineering and construction organizations. The ILM market originates from project and portfolio management, with a specific focus on capital asset project planning, execution, and operation for building owners and their architectural/engineering/construction (AEC) industry service providers. IDC defines the ILM application market and explores recent business issues being faced by program management firms, construction companies, and engineering organizations and how the implementation of ILM can result in improvements in project visibility, cost and schedule management, and best practices. The document also includes ILM software and services revenue forecasts from 2006 through 2011. The paper then examines the role of Meridian Systems in this strategically important market and discusses the company's product suite and customers.

Infrastructure Life-Cycle Management: What It Is

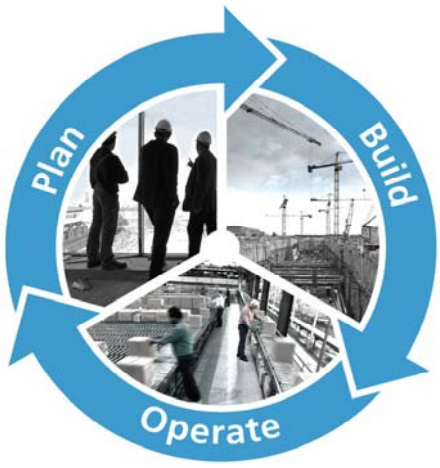
Fundamentally, ILM applications — also referred to as capital project management or collaborative project management applications — are designed to automate the continuous process of managing complex infrastructure construction/commercial real estate projects that perform an array of tasks, including planning, budgeting, project and cost tracking, and ongoing maintenance plus redevelopment. The goal of ILM is to optimize the plan, build, and operate phases of a program or project, bringing together key sets of application functionality onto one integrated platform or system of record. The major software components in typical ILM applications include the following:

- Collaboration and contract management
- Cost control and project scheduling
- Project budgeting, funds source management
- Project performance tracking and business intelligence
- Change management, RFI management, audit trails
- Workflow for automating business processes
- Asset and maintenance management

Figure 1 illustrates the integrated nature of a typical ILM application and how its components enable companies to track and monitor an infrastructure project from inception to completion as well as ongoing maintenance.

Figure 1

The Goals of ILM Application Technology



Plan: Manage project pipelines, site development, entitlements

Build: Track budgets, contracts, changes, schedules, scopes and quality

Operate: Direct asset management, work orders and maintenance management

Source: Meridian Systems, 2007

Recent Trends in Construction Program Management

In the past, the construction project life cycle was managed as three segments, each with different stakeholders:

- Planning/designing by architecture/engineering firms
- Construction execution by general contractors and subcontractors
- Operating/managing by owners/operators or real estate managers

Occasionally, these stakeholders passed their project information from one team to the next, but more likely, they did not. Reasons range from data incompatibility to the desire to keep information such as pricing, scheduling, and materials costs within the company's own four walls. Frequently, the result was distrust, misunderstanding, and litigation among owners and execution partners. Construction industry players now realize that there must be a better way to handle the management and documentation of projects, from inception to retirement.

Especially within the construction and engineering segment, organizations are now beginning to offer program management services, either as a dedicated program management firm or as a new "value-added" service offering from traditional construction and engineering firms. Owners are particularly receptive to these expanded service offerings due to the increasingly complex infrastructure they're required to manage.

The ILM market addresses three particular groups of users:

- Program management firms that are dedicated exclusively to program management
- Engineering, procurement, and construction (EPC) contractors that also act as program managers
- Real estate developers and services companies that serve commercial sector clients by offering outsourced real estate services to Fortune 1000 firms with large capital projects

The challenges for program managers to get from planning and construction to maintenance are threefold:

- Project data: Where is project and design data? How do I access it? How do I maintain it?
- Project management: Which tools do I need for the plan, build, and operate phases of capital programs and redevelopment projects?
- Repeatable processes and lessons learned: How do I standardize project processes and mine project data to transfer key business intelligence to future projects?

These questions can be answered with a number of alternatives — some are slow and inflexible, and some are easy to use, efficient, and effective. For many organizations, the application of choice is Excel or, one step up, Microsoft Project. Large enterprises frequently rely on their internal IT departments to design and maintain in-house solutions.

However, this market is now realizing the benefits of project and portfolio management solutions that are specifically designed for the construction and building management services industry.

Addressing Business Challenges for Program Managers

Depending on their business focus, size, and management structure, program management firms are facing a range of business issues that can make or break their success.

The biggest risk for program management firms is damage to their reputation from an awarded program that goes off track. In a market that operates to a large extent on word of mouth, news about project failure spreads rapidly and threatens the renewal of earlier projects or programs or the award of new ones. The following examples illustrate particularly serious business challenges:

- **Project mismanagement** includes mismanaging costs, project schedules, design deliverables, and government jurisdictional permits and approvals. Once time or cost targets are missed, it is very hard to rein them back in. As a consequence, firms may incur significant penalties for missing delivery dates or for missing agreed-upon cost targets. The most successful approach to avoid mismanagement is to set up channels of collaboration for all stakeholders to ensure open information flow and the auditability of decision making regarding planning, execution, and financing. Furthermore, workflow applications allow project and program managers to set up and automate standardized business processes that ensure efficiency and predictability.

- **Visibility** allows all project/program stakeholders to receive reports and to report on the status of a program at any time with current, accurate information. This requires project data to be centralized in a single repository across the enterprise, a capability that is not necessarily available from all ILM vendors. End users can use role-specific dashboards to access information on the status of each project, drill down on various metrics, and uncover sources of liability that could throw a project off track and create future business risks. This single project information repository not only helps companies gain real-time insight into the status of their activities but also can be mined to examine key performance indicators and to create a knowledge base that can be shared at all organizational levels to continuously improve business performance.

- **Fund source management** is a key business issue for many large infrastructure projects such as airports, roadways, levees, and educational facilities. Much of the complexity of these projects results from the fact that they are funded from several sources of public money. Program management firms have to ensure that they know at all times how much money from each source has been committed and spent and for what specific activities.

Of course, these three examples do not cover all the business issues confronting program/project managers on a daily basis, but they certainly provide an indication of the complexity of the ILM environment.

User Benefits from Infrastructure Life-Cycle Management

Now let's take a more detailed look at four important benefits of ILM to building owners, construction and engineering firms, and government agencies:

- **Cost control.** Cost overruns are among the most glaring areas of mismanagement on complex programs. Because of the complexity of many construction projects and the large number of stakeholders — from architects/designers, general contractors and subcontractors, owners and operators, and of course government agencies and financial institutions — costs can easily spiral out of control. Project and portfolio management applications allow these stakeholders to track and correctly attribute payouts to cost out project changes before making final commitments and to plan project portfolios that are in synch with the space requirements and finances of the owners/operators.

- **Visibility of program status.** Because of the close collaboration among all players involved in a building, from new construction to refurbishing and final retirement, all participants have to be assured of easy access to historic as well as real-time project information. This central repository is at the core of a number of business activities that ensure optimized planning and efficient execution. Of great importance here is the ability of all program stakeholders to have visibility across their project pipelines, creating accountability and providing the auditability required to manage project risk.

- **Schedule management.** In view of the number of people involved across the entire life of a building and the high cost of equipment and materials requirements, precise scheduling capabilities are urgently required across each program or project. Schedules have to be managed with engines that can handle a range of construction processes and ensure timely delivery of project milestones.

- **Best practices.** Successful ILM in the construction industry, as in many other industries, requires its players to standardize and control their business processes and to continuously deepen their expertise with each program or project. With business process management and workflow, ILM practitioners can plan and enforce consistent business practices. Potential sources of liability can be documented and data integrity is preserved through the use of role-based security, approval levels, and task-oriented dashboards. Equally important, these ILM applications allow companies to develop a database of corporate lessons that can be mined by subsequent managers to optimize the execution of future projects.

Infrastructure Life-Cycle Management Market Sizing

Based on the growth potential and emerging ILM application improvements, IDC projects the worldwide ILM application market will reach $5.04 billion in software and services revenues by 2011, compared with $2.3 billion in 2006. This growth represents a compound annual growth rate (CAGR) of 17%.

Target customers of ILM applications include program and construction management firms that serve Fortune 1000 enterprises, multinational corporations, and government agencies. Beyond that, organizations in various services industries, such as healthcare and oil and gas companies, corporate real estate development companies, shopping mall developers, and retail and hospitality chains are now adopting ILM applications.

Key market drivers are the increasing complexity of commercial building projects, the need to document every step in the life of a new real estate asset, and the pressure to deliver construction projects on time and on budget.

Meridian Systems: Experienced Provider of ILM Applications

Meridian Systems is a United States–based ILM application provider that is rapidly expanding its solid footprint in the market for project and program management of assets and facilities. Meridian, located in Folsom, California, originally earned its stripes in the AEC project and portfolio management arena. It now has more than 5,000 customers with nearly 100,000 users and has been cited several times as a leading project portfolio supplier by construction industry trade magazine *Constructech*.

Meridian's original product offering, called Prolog, targets the midmarket project portfolio management arena. Prolog focuses on construction project management and delivers collaboration, purchasing management, cost control, document management, and field administration from project design to closeout.

In 2003, Meridian released Proliance, its next-generation Web application built on a service oriented architecture utilizing XML technology. The most recent version, Proliance 3.6, released in 2007, allows Meridian to continue to deliver on its strategy of offering a single system of record that customers can use from development through maintenance in a plan-build-operate life cycle.

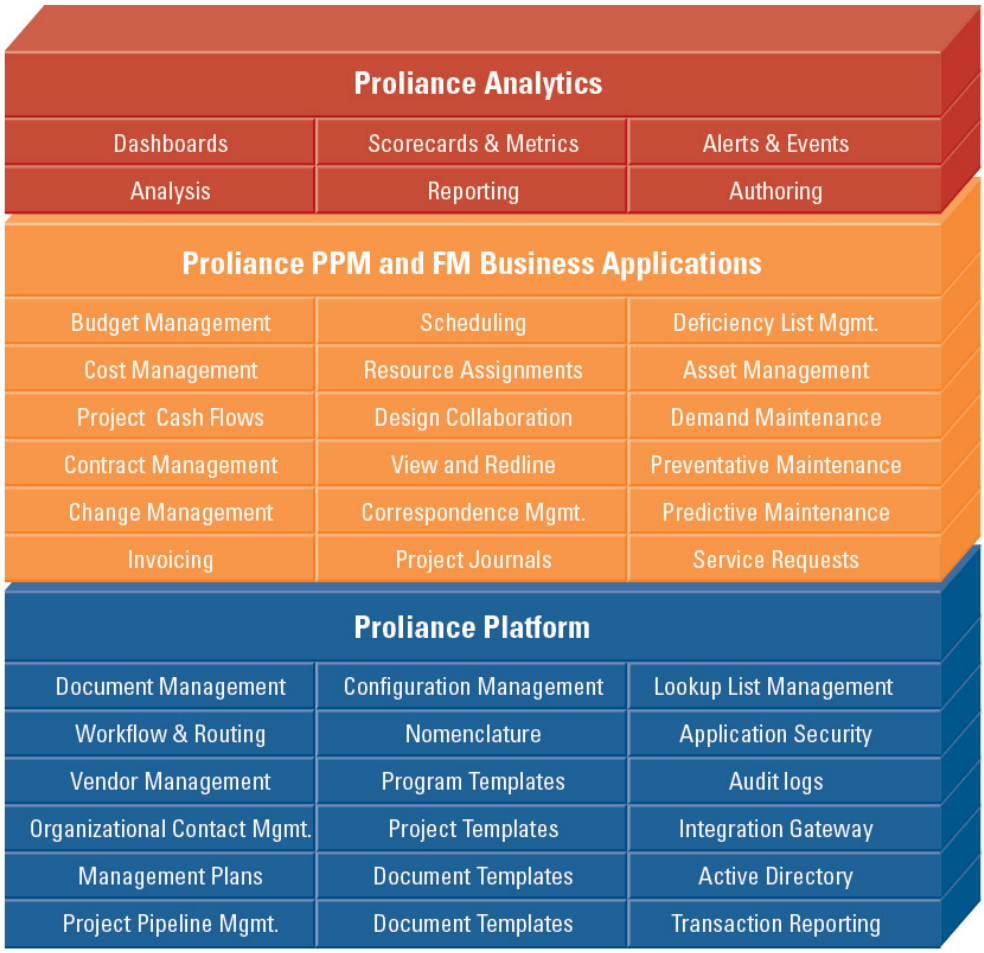
All Meridian solutions can be deployed in a self-hosted or an ASP environment.

The Proliance solution suite consists of the following components (see Figure 2):

- **Project portfolio management (PPM)** enables scoping, budgeting, and scheduling of programs or projects during the planning and building phases of the infrastructure life cycle.
- **Facility management (FM)** enables asset management, maintenance management, and the automation of service request items.
- **Business intelligence** enables comprehensive data analysis. It provides senior executives and midlevel managers with enterprisewide real-time visibility into project and program operations and facilities as well as the entire portfolio through key performance indicators, dashboards, and roll-up reporting.
- **Business process management** is tightly integrated with all Proliance applications via a technology platform that allows enterprises to create, enforce, and automate best practices and processes enterprisewide. The Proliance solution contains its own flexible workflow engine, messaging, and management of corporate processes, projects, and programs.

Figure 2

Proliance Solution Diagram



Source: Meridian Systems, 2007

Proliance is 100% browser-based and has a zero-footprint client. The solution's three layers target the needs of the following user types: the Platform layer includes system technology important to the IT department; the PPM and FM business applications layer provides access to Proliance features that are important to project team members and contributors; and the Analytics layer delivers visibility and performance tracking to corporate executives. Beyond that, Meridian provides a number of deployment options, including self-hosted licenses, an ASP subscription model, and a managed-host environment that combines the best of these two options.

Meridian Customers

Meridian's Proliance customers are large engineering and construction firms, program managers, real estate developers, and public and private sector building owners across several industries. Some examples are as follows:

- Kristine Fallon Associates (KFA) Inc. is a consultant to program management firms and project owners. KFA's staff has in-depth knowledge and hands-on experience with the information technologies critical to design, manufacturing, project management, and facility management. KFA led the Proliance solution implementation efforts for the Illinois Tollway after the software was selected to manage capital projects as part of the Illinois Tollway's Congestion-Relief Program (CRP). KFA has been using Proliance for two years. Since April 2006, the company has trained approximately 1,000 users from over 100 organizations to use Proliance for the Illinois Tollway. KFA is also working with HNTB as the program management firm. HNTB is a multidisciplinary firm known and respected for its program management in transportation, bridges, aviation, architecture, urban design and planning, environmental engineering, and water and construction services.

  Kristine Fallon, the company's president, believes that she has a unique perspective because, over the years, her company has implemented multiple Web-based project collaboration and management systems for large capital programs. When asked about the benefits realized from using Proliance, Fallon provided IDC with three metrics that demonstrate the value of using Proliance in day-to-day business operations:
  - RFIs declined from 30 days during the first year of use to currently 8 days.
  - Issues declined from 50 days during the first year to currently 13 days.
  - Submittal packages declined from 26 days during the first year to currently 13 days.

- DMJM H+N AECOM is an EPC firm and one of the largest design, technology, and program and construction management firms in the world. They have been using Proliance for 18 months. Before moving to Proliance, they relied on spreadsheets, plus Expedition by Primavera and Meridian's earlier Prolog application. The company now has more than 300 active Proliance users, including in-house staff plus collaborative users. Kim McAvoy, the company's Associate Vice President for ePM solutions, found that the most important benefits for her company's business operations are the following:
  - Consistent data reporting
  - True Web applications requiring minimal IT support and offering ease of collaboration
  - Ease of customization and integration with other systems

  Asked about her recommendations for future products, Kim McAvoy suggested to include simple report formats for all documents.

Success Breeds Competition

Since its entry into the construction and facilities management arena, Meridian has been a forceful pioneer in creating the ILM space. At this point, the benefits of ILM are well understood and Meridian is no longer able to fly below the radar of potential competitors. SAP represents a partnership opportunity, and Meridian customers are currently pursuing integrations between Proliance and SAP financials. IDC believes that Meridian has an early start in ILM and should be able to maintain its advantage for a number of years. It will certainly be helped by the deep pockets of its new parent, Trimble (**www.trimble.com**; CY2006 revenue of $940.15 million), which acquired Meridian in October 2006.

Challenges to growth for Meridian will come from at least two areas: the cyclical stability of the construction and real estate services market, and competition from enterprise application vendors:

- The hallmark of the construction industry is its fragmented, high-risk, and cyclical nature. There is hardly an industry with a more challenging business environment — immensely complex projects,

high-risk financing, dependence on global and local business climates, and long delays between planning and completion of projects.

- Competition from enterprise application providers will be hard to fend off. To do so, Meridian will have to go deep — that is, add additional features and functions specifically for ILM. Beyond that, the company should continue expanding into more vertical industries with needs that are similar to those of the AEC industry, such as communications, government, retail, and transportation.

Road Map for Meridian's Future

IDC believes that the future for ILM will be bright and that Meridian will be able to benefit from a number of emerging opportunities. In IDC's opinion, the most promising possibilities are the following:

- Meridian can add vertical industry expertise to expand into communications, government, retail and transportation.
- Meridian can deepen its product offering with applications for compliance reporting/auditing across the entire plan-build-operate cycle.
- Meridian may convince its parent Trimble to acquire a number of best-of-breed providers to expand its product offerings beyond its own in-house developments.

Conclusion

There are many opportunities and challenges for the future of the ILM market as well as the possibilities for growth for Meridian. The company has done excellent work as a pioneer to create this market space for project and portfolio management, with a specific spotlight on planning, execution, and operation for the building industry.

The company's ILM applications provide solid benefits to end users by enabling cost control, visibility into project status for all stakeholders, and precise and detailed schedule management. Beyond that, Meridian's business process management ensures that ILM practitioners can plan and enforce consistent business practices. Furthermore, companies can develop knowledge bases over the long term that can be mined by subsequent managers to optimize the execution of future projects.

IDC believes that these benefits will go a long way to help the ILM market to achieve solid growth rates, and to the extent that Meridian can address the challenges described in this paper, the company has a significant opportunity for success. There is a good chance that the company will be able to draw on support from its parent Trimble to increase its sales activities and raise its revenue growth even further in 2007.

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