



## Meridian Systems Taps Trimble Navigation for a Complete Solution

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ILM = Plan<sup>(BIM)</sup> + Build<sup>(BIM)</sup> + Operate<sup>(BIM)</sup>

I recently had an update from Meridian Systems, thanks to Judith Rothrock's (JRocket Marketing) annual Grape Escape® event. It was also an opportunity to meet Geene Alhady, Meridian's new President, an 11 year veteran of the company who replaced John Bodrozic as he decided to return to his consulting roots. The update included three key announcements:

- Meridian's expansion into the Middle East
- *Prolog Sky* – a new cloud-based service offered either in a hosted or a multi-tenant Software as a Service (SaaS) model
- *Turner Construction Company's selection of Meridian's Prolog Converge* solution for web-based construction project management, supporting over 7,500 internal and external users

*However, what I found most compelling was something not on the "announcement list" at all. What intrigued me was the move towards a much more complete solution philosophy, tapping into existing solutions from its parent company, Trimble Navigation, as well as its announced move to acquire Building Information Modeling (BIM) solution provider Tekla Systems. Given all the complexities and interdependencies, the last thing companies building, managing and maintaining infrastructure and large capital projects need is to collect, manage and integrate a fragmented solution.*

## Who is Meridian Systems?

Originally founded in 1993, Meridian Systems started out offering project and portfolio management software primarily for architectural, engineering and construction (AEC) firms. As the company evolved beyond the planning and design and the build phases of construction, it reached into the post-construction phase during which owners manage and maintain those facilities. In doing so, Meridian went beyond project and portfolio management to manage the entire lifecycle of large infrastructure building projects. It coined the term PBO<sup>2</sup>, which stands for Plan-Build-Operate for Project-Based Organizations and added full Infrastructure Life-Cycle Management (ILM) to its portfolio of products. At this stage of its evolution, Meridian defined ILM as a math equation:

***Meridian "ILM" MATH EQUATION =***  
**Capital Project-Based Organizations + Plan-Build-Operate**

In order to complete this equation Meridian offers two product lines:

- Proliance: A web-based ILM solution that supports project owners in managing a wide range of activities (see side-bar) used by real estate developers, commercial building owners, government agencies and others managing a portfolio of infrastructure projects

- Prolog: Project and portfolio management software used to provide control and transparency to project-based organizations within AEC, commercial and public sectors. Prolog, the original Meridian Systems product, manages the Build phase of PBO with budget & cost management, contract & change management, purchasing/bid management and document & field worker management

Together these two products help project-based companies manage the business at an enterprise level. In 2006 Meridian became a Trimble company. Trimble Navigation is perhaps best known for global positioning solutions (GPS). Like Meridian, it serves the engineering and construction and related industries. Recognizing the equity of the brand it acquired, Trimble allowed Meridian Systems to maintain its name and for the past five years it operated quite independently. While that was beneficial in building both brands, it also left some synergy on the table.

While Meridian works at the business and enterprise level, Trimble operates at the level where the work actually gets done, collecting data directly from the workforce on the projects. Trimble uses GPS, lasers, optical, and inertial technologies, as well as wireless communications and application specific software to provide solutions that link positioning to productivity. Some joint customers are seeing the potential synergy and steering them towards more collaboration between the two. Now Meridian is expanding its product reach in order to directly leverage the data collected at the workforce level across the enterprise.

The next step in the combined company's evolution expands this joint solution even further. In May 2011 Trimble extended an offer to acquire all shares in Tekla Corporation. Headquartered in Finland, with a U.S. office in Atlanta, Georgia, and more than 5,000 customers in the construction industry around the globe, Tekla is a leading provider of Building Information Modeling (BIM) software. Tekla offers model driven solutions for customers in the infrastructure and energy industries (in particular energy distribution, public administration and civil engineering and utilities), creating the potential for even more synergy with the combination of Trimble Navigation and Meridian Systems. Two Meridian customers ([Ryan](#), Stanford Hospitals) are already integrating BIM to ILM.

## A New Component: BIM

BIM creates a digital design model. The purpose of this model is to enable constructability and production control. By centralizing and digitizing the model, project management and delivery can become more predictable and collaborative. Tekla's BIM solution, Tekla Structures supports creation and management of accurately detailed, highly constructible 3D structural models regardless of material or structural complexity. Tekla models can be used throughout the building process from conceptual design to fabrication, erection and construction management. And, as you will see as you read on, perhaps even beyond the initial Build phase.

## What is Driving this Push?

The world economy, an evolving global market and the recent spate of natural and man-made disasters all combine to create an increasingly challenging business environment for the capital projects-based organizations Meridian Systems, et al serve.

During the recession, which began in 2008, industries supporting infrastructure-related development took a big hit. New construction slowed or came to a complete halt in many regions of the world including parts of North America. Even necessary maintenance projects were pared down, delayed or postponed. Now as we are seeing signs of a recovery, albeit a slow recovery, the very nature and mix of infrastructure projects are changing. We're seeing less new construction (the Plan and Build phases) and more renovation and maintenance (the Operate phase) in mature economies. This in turn causes a major shift in the Operate stage to not only maintain and manage, but also to manage renovation, remodeling and even rebranding.

This also changes the complexion of the projects, shifting from single large projects to multiple, yet often inter-dependent projects. While the ability to manage schedules and cost and maintain control over new infrastructure and construction projects has always

been critical, when renovating or remodeling, there is the added factor of business disruption. While renovating a hotel floor by floor, the rooms on the floor under construction cannot be booked. When remodeling a residential apartment building, new tenants cannot take up residence and rental or condominium fees collected. During rebranding, remodeling or renovation of a commercial building, business cannot continue uninterrupted.

## “Fast-Track” Projects

This creates the increased need for “fast-track” projects. And it would appear lately that Mother Nature is also conspiring to supplement the need for these “fast track” projects. While natural disasters are not new or unique to the post-recession, the vast devastation created by events such as Hurricane Katrina, the earthquakes in Haiti, Chili and Japan, the recent tornadoes in Joplin, Missouri and western Massachusetts, is unprecedented, thus creating the need for new or massive repair to infrastructure.

In a “fast-track” project, design and development often must be combined in order to minimize down time. While management of these projects is better enabled through ILM and project and portfolio management software, adding BIM to the mix is the secret sauce and perhaps the most essential element when combining design and development. BIM creates a three-dimensional (3D) model, which encompasses building geometry, spatial relationships, geographic information, and quantities and properties of various components. All these different elements are created as BIM objects. Relationships between objects are defined as parameters, so that if an object changes, those related to it also change. As a result, a virtual environment is created in order to better understand and manage the physical environment.

In combining ILM with BIM, Meridian Systems also introduces the concept of 4D and 5D modeling. While intuitively difficult to picture, essentially the fourth dimension is cost and the fifth dimension is schedule. By integrating all components of the operational business processes and data (LIM) with the digital design model (BIM) you are able to assess the impact of a design change on both the cost and the schedule.

## Another Whole World

While renovation, remodel and repair of infrastructure might dominate in mature markets like North America, there is another whole world out there. In emerging markets, new infrastructure must be built. Nowhere is this more evident than in the Middle East, where some of the largest capital infrastructure projects in the world are underway. These are global projects, unable to rely only on local resources and therefore they pull in people, materials, contractors and subcontractors from around the world. And some of these projects are more massive than any we have seen, at least in modern history. Projects like:

- The [Saadiyat Island Cultural District](#) in Abu Dhabi: Covering a land mass of 2.43 million square meters, the master plan is to build an entire district including a national museum, a performing arts center and Abu Dhabi versions of the Louvre and the Guggenheim. Massive in scale and scope, “Saadiyat Cultural District will be a center for global culture, drawing local, regional and international visitors with unique exhibitions, permanent collections, productions and performances. Its iconic institutions will be housed in buildings constituting a statement of the finest architecture at the beginning of the 21st century.”
- The Knowledge Economic City in Saudi Arabia, with an estimated construction value of \$8 billion, is expected to take between 10 to 12 years to complete
- The new National Railway Network in the United Arab Emirates will provide freight and passenger service, stretching across the Emirates, covering a network of approximately 745 miles. The new railway network will connect the United Arab Emirates to Saudi Arabia. The first of three stages of the project is projected to be complete in 2014.

As a result of this type of opportunity, Meridian Systems is seeing a significant increase in business outside North America. The ratio between U.S. and international sales has shifted dramatically. Until recently, revenue outside of the U.S. was 10% or less, and now it is closer to 30%. Hence the expansion into the Middle East with a new regional office in Dubai. In doing so, it once again leverages the resources of its parent company, already present in the region and is better positioned to support some of its marquis customers and its own growth.

## Case in Point: AECOM, A Meridian Systems Customer

*Headquartered in Los Angeles, California, AECOM is one of the largest providers of professional technical and management support services in the world. According to Jim Walsh, CTO, "You'll see us in industries like transportation, facilities, environmental, energy, water and the government sector. We have more than 45,000 employees in approximately 125 countries. We reported \$7.3 billion in annual revenue for the 12 months ending March 31, 2011, and we are ranked #353 on the most recent Fortune 500 list. We are defined by our reputation for leadership – especially in high-growth markets, our long-term portfolio of blue-chip clients and our diversification across multiple industries, geographies and funding sources. We consistently produce strong financials and, for the most part, have a low-risk business model. I say 'for the most part' because we do operate all over the world and geopolitical events such as the recent turmoil in the Middle East and North Africa can lead to temporary or long-term business interruption. "*

*Indeed, AECOM is engaged in the three Middle East projects noted above as well as*

- *The New Doha Port in Qatar, a \$7 billion construction effort that is currently the world's largest "greenfield" port-development project*
- *The Capital District Development Project in Abu Dhabi, a mixed-use city that will form the center of the United Arab Emirates' federal government, be home to 370,000 residents and feature an underground, high-speed metro, plus highways, water, sewage, cooling, communications and all-inclusive infrastructure.*

*A complete solution is exactly what AECOM was looking for, working with Meridian since 2002, initially with Prolog for construction management and project management, and then in 2005 selected Proliance as its next generation technology solution. "Meridian is capable of managing tens of thousands of pages of documents...and in managing programs with budgets that reach tens of billions of dollars," said Mr. Walsh.*

*"So what makes Meridian so special? Its solutions are purpose-built. Meridian does what big ERP companies don't do well. These big firms have all kinds of toolsets and workaround capabilities– but, for us, that would involve a lot of complex programming that Meridian has already figured out – and does out of the box, with superior end results. Meridian of course plugs into a wide variety of ERP backbones like Oracle, SAP and Microsoft. So, why don't we just use these ERP backbones? Because, I don't want to go through all that work, and then have to view 15 screens to get an answer. With Meridian I can get what we need...quickly, cost effectively and with the right blend of system and technology integration.*

*"AECOM is a large organization driven heavily by our clients' requirements. The goal of the program management we provide is to deliver the expertise that will save our clients time, money and complexity...wherever possible. Meridian gives us the features and functions that are powerful enough to get the job done with great flexibility and a great user interface."*

## Key Takeaways

As you can see, the world of infrastructure and capital projects faces a dichotomy of needs. On the one hand, "fast-track" projects need to be just that – fast. Yet the more likely the project is to be fast-tracked, the less likely it is that it stands alone. So while there may be fewer moving parts, there is also more need to integrate and interoperate with other pieces of a larger puzzle and less room

for error. On the other hand, we see more massive and complex infrastructure that must be built, and sometimes (most likely) it needs to be managed half a world away.

A wide variety of functionality is required to manage throughout the PBO<sup>2</sup> environment, from planning and design, to build and development, to manage, maintain, renovate, remodel, rebrand and repair. My opening segue bears repeating: Given all the complexities and interdependencies, the last thing companies building, managing and maintaining infrastructure and large capital projects need is to collect, manage and integrate a fragmented solution. By leveraging the data collected where the work is done, providing a virtual environment that can model the real world and tools that provide a system of record and guided decision-making throughout the Plan – Build – Operate lifecycle, Meridian Systems, with a little help from Trimble, is evolving into a complete solution.

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