

**Evolving Business Information
Systems (BIS) Usage in Asset-
Intensive Industries: *What to
Look for as an Investor***

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Technology-focused and generalist investors alike have been investing in business information systems (BIS) for asset-intensive companies over the years for several reasons. Expanding use of BIS solutions within these industries, high barriers to switching, relative price insensitivity, and ease of cross-selling new modules once you're embedded all make for attractive industry dynamics for potential investors. With asset-intensive firms fighting hard for every bit of incremental profit, productivity improvement has been a go-to strategy, and investment in computing power was often a surefire way to get it. But *where* these companies are investing has changed significantly. It's important to understand how in just a few short years the end-customers' BIS needs have evolved from automating business processes to leveraging internally generated data for operational improvement.

A recent survey by *The Economist* indicated that only 11% of organizations in asset-intensive industries consistently (i.e., 90% to 100% of the time) deliver planned return on investment (ROI) on major capital projects. To improve these outcomes, organizations perennially seek the best mix of people, processes, and technologies to leverage. As Stax has observed through past engagements in these industries, the way in which organizations are structuring their operations to best utilize these variables is undergoing a

paradigm shift. For BIS solutions specifically, operators are seeking systems with enhanced analytics capabilities, more granular controls and visibility, and greater flexibility. In addition to effectively addressing the operational issues they were initially implemented to solve, these solutions are increasingly being called on to facilitate and enhance the flow of information within an organization and throughout the supply chain, as well as to provide a firm with the flexibility to reconfigure and redeploy solutions as processes and business objectives change.

HOW THINGS WERE

If we rewind the clock to five to ten years ago, the opportunity in asset-intensive industries for tech investors looked very different than it does today. The software systems first implemented to serve these industries sought to improve operational efficiency and reduce overhead costs by automating manual, labor-intensive processes. Since the systems were streamlining existing and clearly defined processes, return on investment (ROI) for these investments was achievable and measurable, enabling software providers to present firms in these industries with strong value propositions.

For investors, the main question was "Where is there a spreadsheet to replace or a manual process that can be automated?"

Clients were asking Stax about the basics: to help them understand where the white space was and how adoption was likely to evolve across asset-intensive industries. Although the industries evolved and adoption increased, they did not do so without growing pains. Uptake and adoption often took time for several reasons, namely long sales cycles (sometimes up to two years with a necessary reorganization to implement software), organizational learning curves and training, as well as skepticism and pushback from operations managers and directors. Benefits to the BIS industry came via a series of “shots in the arm,” as increasing regulatory requirements and industry consolidation further emphasized the need for software that could drive down operating costs—spurring greater penetration of these systems.

Once software companies had penetrated these businesses, they were able to embed themselves within these organizations’ core processes (e.g., production, asset management) and then branch out to adjacent, non-core processes, (e.g., forecasting, parts inventory, marketing) automating these functions on their way to becoming comprehensive end-to-end systems.

HOW THINGS ARE

As rudimentary adoption has taken place across asset-intensive industries, opportunities to displace “paper and pen” and Excel-based processes have declined and are now few and far between. Additionally, winning share from incumbent software providers is becoming increasingly more difficult as switching costs are high, purchasing cycles remain long, and customer bases continue to consolidate. Although regulatory changes and system enhancements will still provide new prospects for software vendors, the opportunities will likely be far less fruitful than they were only five years ago.

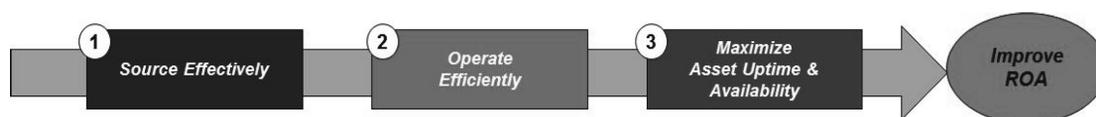
So where is the opportunity now for software providers in asset-intensive industries? Based on Stax’s

experience, it’s in finding and harnessing data that, when assembled and manipulated in new ways, can move the needle for operational improvement and greater return on assets (ROA). With operating decisions still too often made with incomplete datasets and reliant on gut feeling and intuition, firms are seeking solutions that can break down data silos, deliver granular and actionable insights, flex when needs and business processes change, and provide visibility throughout a firm’s operation. In Stax’s opinion, although this opportunity can take many forms, from business accelerators and performance management systems to benchmarking data, the main functions these software solutions seek to provide can be categorized into three categories, namely helping firms source effectively, operate efficiently, and maximize asset uptime and availability (see Exhibit 1).

Source Effectively: Improve Asset Procurement and Supply Chain Activities to Ensure Utilization of Assets

Maintaining high levels of utilization across assets remains a particularly important consideration for firms operating in asset-intensive industries, as does selecting the right assets and inputs to procure. These functions can take on various forms depending on the industry, such as finding and procuring land for drilling, tracking cargo for shipment, or ensuring timely delivery of raw material for a manufacturing process. To support and enhance these processes, software solutions are being called upon to *improve flow of information (i.e., speed and quality) between two entities or business units operating at different points on the value chain*. These systems provide access to new external sources of information that were previously either unattainable or difficult to analyze, which, when factored into the decision making and planning process, can help companies attain cost reductions and efficiency gains in the supply chain.

EXHIBIT 1 Opportunities for Software Providers



Operate Efficiently: Minimize Operational Risk and Improve Efficiency

Another area in which software providers are seeking to add value is in *harnessing internally generated data* to enhance the speed and accuracy of decision making. These tools seek to provide decision makers with the ability to quickly filter and analyze greater amounts of information. They eliminate the need to rely solely on intuition or past experiences when performing activities such as optimizing shipping routes, enhancing the performance of communication networks, or streamlining mining operations. They are seen as most valuable when they break down silos within an organization—enhancing visibility and providing managers with the ability to act on quantifiable data and fact-based reporting.

Maximize Asset Uptime and Availability: Improve Asset Value and Performance

Maximizing asset uptime is another major area of concern for firms operating in asset-intensive industries, as unexpected machine downtime can cost a firm millions of dollars in lost productivity and prevent it from achieving desired ROA. Although scheduling and maintenance tracking software has helped automate several processes associated with maintaining capital purchases, companies are increasingly seeing value in technology that can do more than just monitor asset performance. They want systems *diagnosing and healing* when an asset experiences an unexpected issue. These systems can collect machine performance information, identify anomalies or asset degradation, and in some cases assist with correcting the performance issue. Although the *self-healing* component of this software is still in its infancy, it already appears to be manifesting itself in applications across energy (e.g., self-healing grid solutions), oil and gas (e.g., self-healing cement system), and telecommunications (e.g., network performance management systems).

During this phase of software adoption, software providers will likely not face the same adoption challenges as their predecessors, because their tools seek to enhance—not replace—current processes, leverage existing infrastructure, and can be delivered cheaply

(i.e., through the cloud or virtualized appliances). However, ROI improvement will likely be more challenging to quantify, since these systems rely more on the capabilities of those using it and the current systems in place than previous software had to. To be successful, software providers will likely need to evolve business models and supplement the software with consulting and service components in order to maximize the value that their solutions can deliver.

INCUMBENTS VERSUS NEW ENTRANTS: WHO'S BEST POSITIONED?

So with this new wave of adoption unfolding over the next several years, who is best positioned to win: incumbent software providers or new entrants? In Stax's opinion, it's likely to differ by needs area, with degree of entrenchment, firm capabilities, proximity to data source, and the ability to show customers how they can extract value driving success.

By *sourcing effectively*, we give the edge to incumbents. Firms with experience navigating the supply chain, procuring materials, and fostering communication will likely have the advantage over new entrants to the space, as industry domain and expertise are likely to create barriers to entry. With that said, firms with unique datasets or analytics and data-gathering capabilities will be able to effectively compete across asset-intensive industries either through integration partnerships or by providing greater depth in a particular function (e.g., freight sourcing, supply chain communication).

In terms of *operating efficiently*, the advantage again goes to the incumbents. The fact that companies are still, for the most part, dependent on datasets generated from legacy systems, means there is less incentive to switch to new providers looking to “sit atop” existing infrastructure. Well-established comprehensive vendors spanning core processes are best positioned to offer these additional functionalities, either as an upsell or bundled solution.

Maximizing asset uptime and availability, however, is where new entrants stand a better chance of luring customers away from incumbents. Those in the best position to provide new diagnostics and self-healing capabilities are the vendors with intimate knowledge of how the individual machines function, which hasn't tradition-

ally been a focus of incumbents who sell more “out-of-the-box,” standard maintenance solutions across their platforms. Original equipment manufacturers (OEMs), in particular, can more easily build these capabilities into their own offerings, but must do so in a way that is flexible enough to adapt to a range of legacy data formats and makes switching easier for customers.

How Things Will Be

In supporting BIS transactions in the asset-intensive space over the last decade, we’ve seen both opportunities and pitfalls for investors looking to participate in a shifting environment for BIS providers. The solutions that succeed will be the ones that better harness a wide range of data on an enterprisewide basis, capable of breaking down data silos and providing granular insights across departments and functions, as opposed to the historical model of focusing on discrete processes. Those looking to invest in this growth opportunity need to make sure they’re putting their money into suppliers who are at the leading edge of the transition and who have a demonstrated ability to adapt to changing customer needs.

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