

IT Doesn't Matter—Or Does It?

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Businesses around the world spend well over USD 2 trillion a year on information technology (IT). Today, some companies spend 50% of their capital expenditures on IT. Certainly, with such a large spend, IT must matter...or does it? Author Nicholas Carr wrote a paper in the *Harvard Business Review* titled "IT Doesn't Matter" (Carr 2003). The article eventually grew into a book titled *Does IT Matter?* and set off a worldwide debate about the role of computers in business and industry. Carr argues that IT has become much like other technologies that were initially revolutionary and strategic for companies but rapidly became a commodity available to all. He uses the steam engine, railroads, electricity, the telephone, and the highway system as examples. He argues that only at the macro level, involving entire societies or economies, can IT provide transformational value. He also suggests that IT managers should take a "follow the leader" approach and focus more on IT's vulnerabilities such as data security.

Carr raised some provocative points, and the purpose of this article is to address these questions:

- Can E&P companies gain a strategic advantage by taking a strategic approach to technical computing?
- If so, how should a technical computing strategy be developed and how can companies gain a strategic advantage?

For the purposes of this article, IT and technical computing are defined as the technical applications used to help companies optimally find, access, and produce hydrocarbons. The answer to the first question is a resounding "Yes!" Companies can in fact gain a strategic advantage by developing a strategy for technical computing. However, companies must embrace and apply specific fundamentals before a strategic advantage can be achieved. Without these fundamentals, developing such a strategy will not only be a pure cost but also a pure waste of time.

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Technical Computing Strategy Fundamentals

Fundamental No. 1: There Is No Such Thing as an "IT Project." Carr's article ruffled some feathers and this statement may as well. In reality, there is no such thing as an "IT project," only business initiatives with the intent of delivering on the company's goals and objectives. Many of these initiatives may have an IT component, but the goal of the initiative is to deliver tangible, quantifiable business results. When a project is incorrectly classified as an "IT project" it can suffer an ill fate.

All too often, companies make a technical computing purchase decision that is subsequently "flopped over the IT fence" for implementation. Little to no follow up occurs in assessing the outcome of that purchase decision nor are the results quantified. Without this, it becomes easy to lose sight of the big picture, which usually leads to cost overruns, scope creep, delays in implementation, and less-than-stellar results.

Fundamental No. 2: Business Leadership Is Essential.

Because there are no purely IT projects, only *business* initiatives, business leaders must take a proactive role in ensuring that these initiatives deliver on their stated intent. By business leaders, I mean the men and women who are accountable for the profit and loss of an asset, region, or any aspect of the business.

Unfortunately, in the E&P Industry, this is rarely the case. Initiatives with a strong technical computing component often get relegated to the IT department and are managed as such. When this happens, companies usually lose sight of the business goals and the strategy behind the initiative and the initiative rapidly becomes an IT project. The tail begins to wag the dog!

Fundamental No. 3: It Is Not What You Have But What You Do With It.

As with any technology-based product, companies that sell technical computing products will tell you how great their products are, how easy they are to use, and how much money you will save if you buy them. When I hear these pitches, I am instantly enamored with the concept that if I simply buy a Formula 1 race car I will automatically win a Formula 1 race. But just as there is much more to winning a Formula 1 race than simply owning a fast car, there is a lot more to gaining a strategic advantage from technical computing than just the technology.

When it comes to technical computing, business leaders must develop an effective technology strategy that includes an established and maintained balance among people, process, and technology. It will be almost impossible to win

the E&P race if leaders do not address all these aspects of an initiative. This includes tending to issues such as change management, the existence of scalable and flexible processes within functional groups as well as across functional groups, and ensuring your people are fully prepared to drive the race car with an adequate support team in place.

Fundamental No. 4: First Who, Then What. The IT industry is very dynamic and fast-paced. The innovation rate of this industry is one of the fastest, and it is common for industry-leading companies to be overtaken quickly. All one has to do is look at how quickly bells and whistles are added on to more common technologies, such as the cell phone, and how quickly competitors follow. At the same time, it is not uncommon for competitors to leap frog their rivals for periods of time and then have those same rivals leap frog them later. Carr accurately states, “In actuality, the window for gaining advantage from an infrastructural technology is open only briefly.”

Because of the fast-paced nature of the industry, E&P executives and business leaders must use a “first who, then what” approach when selecting technical computing vendors. Once selected, you have essentially formed a relationship akin to a marriage, with all the ups and downs inevitably to be experienced. When you choose your vendor, be leery of the feature/function discussions by competitors; remember the leap frog effect and fast-pace nature of this industry. A strategic relationship with your vendor will most likely outlive any new bells and whistles touted by a competitor.

Current and Future Technologies

We are all aware of the macro trends in the industry: the demographic shift, increasing geopolitical challenges, complexity in finding and replacing reserves, the shift in power from international oil companies to national oil companies, and the continued pressure to reduce greenhouse gases. Add to this list of trends the fact that commodity prices have recently reached all-time highs and remain volatile, and you have the making of very interesting challenges with an increase in the need for rapid, accurate answers at all levels within the organization. The companies who best understand these trends and adapt the right current and future technologies will win the E&P race.

Current Technologies

Data Integration. In the short term, data integration will continue to greatly improve efficiencies. At the moment, understandably, technical computing integration primarily addresses cross-technical disciplines. In the future, integration across departments will take place (e.g., between drilling and finance, and production and procurement, as well as between customers and suppliers).

Collaboration. Companies need to deliver holistic solutions. For this reason collaboration technologies are beginning to gain traction, and will continue to, as the complexity of finding and replacing reserves continues. It will no longer be appropriate, for example, for facilities to make the call on where to place a platform without significant involvement from other functional groups within the company. Collaboration technologies will help to ensure the various functional groups deliver the best overall solution for the business as a whole.

Use of Real Time. Real-time technologies will also continue to grow as they have significantly reduced nonproductive time as well as enabled planned vs. actual comparisons and “course corrections” during execution.

Future Technologies

Automation. Once integration and collaboration technologies have been fully developed, embraced, and implemented, the industry will begin to see automation technologies gain traction. These technologies will be the engines that automate the workflows developed by the integration and collaboration technologies and will significantly assist in addressing the demographic trends of the industry as well as the need for rapid, accurate answers.

Data Quality Control. In order for all of the technical computing technologies to work effectively, data used to assist in delivering a higher level of information and knowledge must be accurate. Data quality-control technologies will need to be developed to “smartly” assess the validity of the data entered/captured and notify users when discrepancies arise. Currently, there are significant issues with data quality in the industry, an area where significant strategic advantage can be gained.

Complex Event Processing. This technology, and other technologies of this type, will start to be developed and will take real-time technology to the next level. It will no longer be sufficient for technology to simply produce alarms when one, specific event occurs. In the future, real-time technologies will need to factor in multiple events that provide not just real-time data but real-time information and knowledge.

Data Mining and Neural Networks. Vast amounts of data are captured about the subsurface, when accessing the reservoir, and about the hydrocarbons and other fluids produced. At the moment, these data are just data. Enormous amounts of information and knowledge are contained in the data that can significantly assist E&P companies. Data mining and neural networks will become what 3D visualization was 20 years ago.

Conclusion

Companies invest a significant percentage of capital on various forms of IT. Tens of billions of dollars are invested each year by E&P companies, often with long payouts, and it is technology that gets us from finding to producing reserves. Technical computing is just one of many tools in a company's technology portfolio that can have a considerable impact.

Still, there is significant value untapped in technical computing and, hence, a strategic advantage to be gained for companies in the E&P industry. However, technology is only an enabler of “bigger and better” things, and fundamentals, such as a technical computing strategy, must be embraced and adopted before the total value of these technologies can be extracted. Technologies exist that can greatly assist companies with their current goals and challenges but there are still significant innovations being worked and needed in the industry to take it to the next level.

Reference

Carr, N.G. May 2003. IT Doesn't Matter. *Harvard Business Review*. **3566** (May): 1–10. **JPT**



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