PwC's 5th Annual Digital IQ Survey

Energy and mining companies work to catch up with the IT revolution

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Progress—but at a slow pace

The key to harnessing the opportunities and avoiding the pitfalls of the digital revolution is the integration of IT with business strategy, such that new technologies are leveraged across the landscape of the enterprise.

Information technology in its most dynamic forms—mobile computing, social media, cloud computing, and Big Data analytics—is radically altering not only the way companies interact with their customers and the world, but how they function internally. Successfully harnessing the opportunities and avoiding the pitfalls of this transformation is essential to building "digital IQ"—the measure of how well a company understands the value of technology, weaves it into the fabric of its organization, and integrates information technology (IT) into its business strategy. This transformation demands the full commitment of senior management. In fact, PwC's 5th Annual Digital IQ Survey found that companies with strong relationships between the CIO and other C-suite members are four times as likely to be top performers.

The imperative to integrate new IT tools deeply into their organizations is especially strong for energy and mining (E&M) companies. External pressures such as rising raw-materials costs, increasing security issues, fast-shifting consumer spending and behaviors, and more complex supply chains that increase the threat of disruptions make it essential to raise productivity, cut costs, and find new efficiencies—all of which digital communication and more sophisticated data analytics can help them achieve.

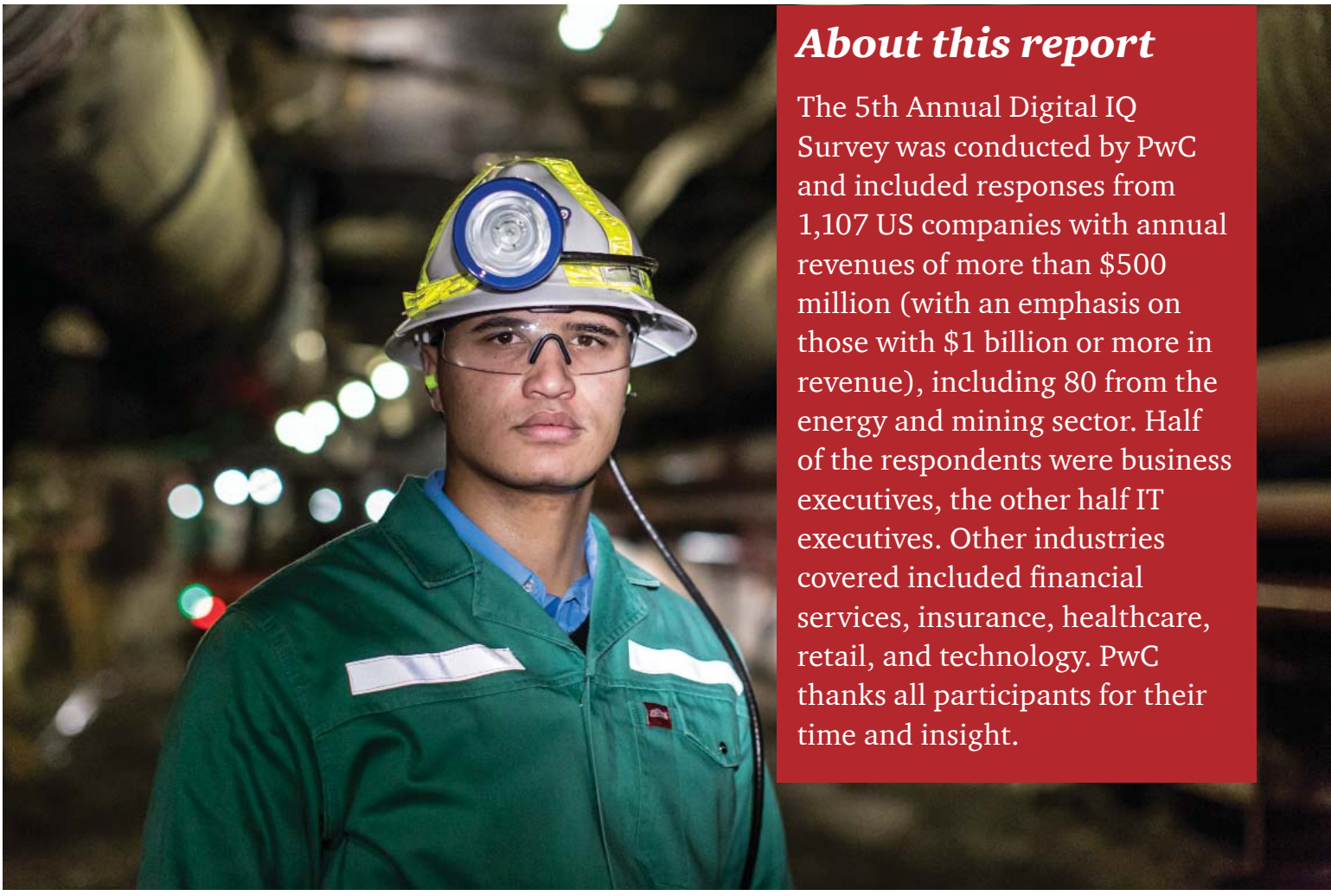
Despite these issues, E&M companies are concerned they may not have the internal capabilities to address them (see Fig. 1, below). Among the internal challenges E&M companies cite most frequently are the speed of technological change, a lack of understanding of the technologies needed to be competitive (63%), and an inability to gather and act on data about customers, products, and employees—all IT issues. Notably, these concerns ranked ahead of more widely recognized issues such as increasing tax burden, basic infrastructure adequacy, and pressures from new market entrants.

Fig. 1: Top potential threats to growth prospects of E&M companies

Top external threats	
1. Energy and raw-material costs	74%
2. Intellectual property theft	68%
3. Shift in consumer spending and behaviors	63%
4. Supply chain disruption	60%
Top internal threats	
1. Speed of technological change	67%
2. Inability to quickly understand and adopt information technologies needed to be competitive	63%
3. Availability of key skills	62%
4. Inability to gather, understand, and act on all of the data about our customers, products, company and employees	60%

E&M companies' progress is comparable with that of companies overall in most respects. More than half now interact with their customers using mobile technology, slightly ahead of our overall survey group, while almost two out of three agree that harnessing Big Data will give them a competitive advantage, also slightly ahead of companies overall.

"Mining companies have long focused on some elements of IT. They were early successful users of GPS technology, for example," says Steve Ralbovsky, US Mining Leader at PwC. "Now, as mineral prices are moderating while costs are increasing, data analytics are an important element in keeping equipment operating with reduced downtime and in minimizing costs in general." But reaping the benefits of digital transformation requires not only using these technologies, but putting them at the heart of strategy setting, mobilization, and execution.



About this report

The 5th Annual Digital IQ Survey was conducted by PwC and included responses from 1,107 US companies with annual revenues of more than $500 million (with an emphasis on those with $1 billion or more in revenue), including 80 from the energy and mining sector. Half of the respondents were business executives, the other half IT executives. Other industries covered included financial services, insurance, healthcare, retail, and technology. PwC thanks all participants for their time and insight.

Building digital IQ: Strategy, mobilization, execution

E&M companies have made progress building senior-level support for technology transformation and making IT a larger component of their strategic planning and execution. "E&M companies that have established strong collaboration between the c-suite and CIO are more likely to become top performers. These companies will better understand the value of technology and integrate it into all aspects of their organization," says Niloufar Molavi, US Energy Leader.

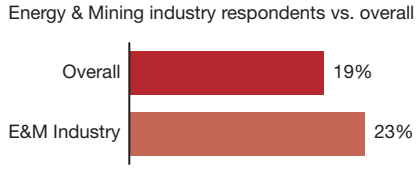
More than half of E&M companies report strong relationships between the CIO and other members of the c-suite. This is comparable with companies overall, although slightly more of the latter claimed strong CIO relationships with the CEO, CFO, and business leaders. And while E&M companies occupy the bottom of the list of 15 industries we studied in developing collaborative relationships, their score is close to those of data-intensive industries such as asset management, financial services, insurance, and healthcare.

This suggests the sector's progress at building digital IQ will accelerate in coming years, as closer collaboration leads to greater integration of new communications and data-analysis technology into companies' business strategies and decision-making. Accordingly, between 40% and 50% of E&M companies expect IT spending to be a bigger ingredient in business strategy execution in 2013 across a range of categories: M&A, new joint ventures and other strategic alliances, expanding into new geographic markets, new product and service development, and building market share in existing markets (see Fig. 2, below).

Fig. 2: Expect IT capital spending to increase in 2013
(% E&M vs. all companies)

Mergers and acquisitions	
E&M companies	43%
All companies	34%
New joint ventures and strategic alliances	
E&M companies	45%
All companies	37%
New geographic markets	
E&M companies	45%
All companies	47%
Increased share in existing markets	
E&M companies	41%
All companies	42%
New product or service development	
E&M companies	45%
All companies	52%

Fig. 3: Respondents are not confident that their employees have everything they need on a mobile platform

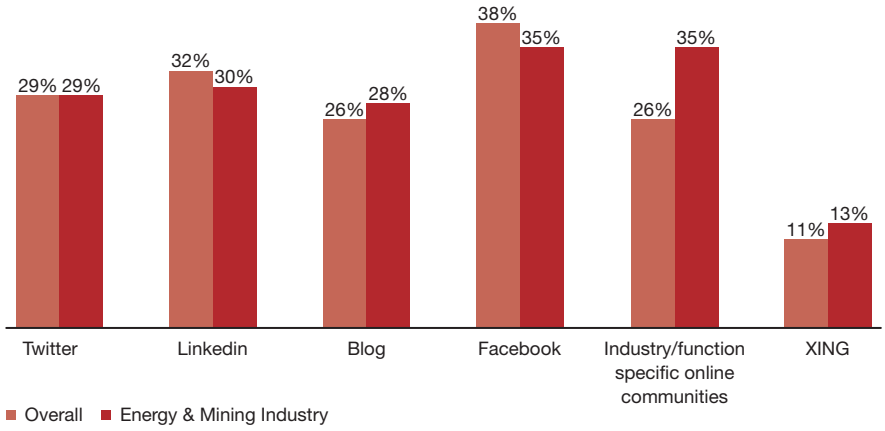


But while many E&M companies' strategic vision includes increased investment in the four most dynamic information and communications technologies, there is still room for improvement:

- ***Mobility:*** Mobile computing and communications are especially useful for E&M companies, given that their primary activities are location-specific, often ranging into remote regions. Yet only 23% say their employees have all the tools and applications they need on a mobile platform (see Fig. 3, left). Similarly, E&M companies' planned spending in 2013 on mobile technologies for customers (36%) and for employees (26%) lags behind our overall survey group (57% and 45%, respectively).

- ***Social media:*** E&M companies' current investment in social media is comparable with that of overall respondents (see Fig. 4, below). However, E&M companies place somewhat greater emphasis on social media as an internal communications tool, given that mining companies do not regularly deal with consumers. More than one in three are investing in social media for internal communication compared with only one in four that are doing so for external stakeholders.

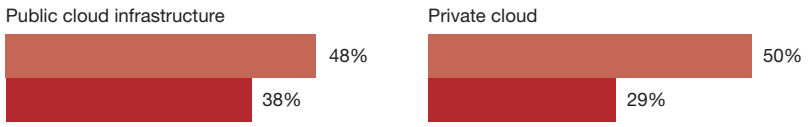
Fig. 4: Respondents appear to be boosting their digital strategies with greater investments in social media such as Facebook and online communities



"As pressure grows to 'pay your fair share' with regard to taxes and royalties, however, mining companies will need a better connection with consumers and the public in general. Social media is key to accomplishing a better connection with the public in today's digital world," says Steve Ralbovsky at PwC.

- ***Cloud computing:*** Half of E&M companies plan to invest more in public-cloud applications in 2013, matching the expected spend for companies overall, and 12% say they will make their first private-cloud investment this year. However, E&M companies lag others in planned investment in both public-cloud infrastructure and private cloud (see Fig. 5, below).

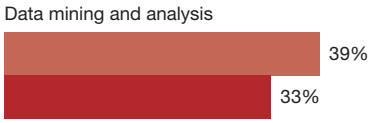
Fig. 5: E&M companies expected 2013 investment in cloud computing lags overall respondents (% E&M vs. overall companies)



- ***Data analytics:*** While E&M companies understand the opportunity in better use of analytics—more than 60% say they see the potential for competitive advantage—less than one-third are currently investing in data mining and analysis. That gap is expected to extend through 2013, as only 33% of E&M companies report plans to spend more on data mining and analysis vs. 39% for companies overall (see Fig. 6, below).

  Given the potential of new communications and data-analysis tools to improve efficiency, enhance collaboration, and facilitate innovation, putting these technologies at the heart of strategy is essential. But for mining companies in particular, this is not likely to happen quickly.

Fig. 6: E&M companies expected 2013 investment data analytics lags overall respondents (%E&M vs. overall companies



"Often, energy and mining companies grow through acquisitions," says Ralbovsky. "With these acquisitions, come disparate legacy IT systems. Data analytics is more difficult when analyzing multiple systems. Unifying and updating IT systems may have to precede increased data analytics at mining companies."

Mobilization is the essential next step

Almost two out of three E&M companies—slightly more than our overall survey group—have a single, multi-year roadmap for their overall business strategy.

Mobilization—creating a strategy execution plan, applying the financial resources, and assembling a team with the right mix of skills—is a critical component of digital IQ. This is especially the case for E&M companies, which traditionally have parceled out their investment among extraction projects that can take years of preparation for a finite period of actual production.

Accordingly, the majority of E&M companies understand the importance of a robust mobilization plan and are making progress at developing one for their technology initiatives. Almost two out of three—slightly more than our overall survey group—have a single, multi-year roadmap for their overall business strategy, for example (see Fig. 7, below). And more than two out of three agree that balancing the strategic and market-facing potential of technology with the implementation costs and risks is important to improving value—comparable with companies overall.

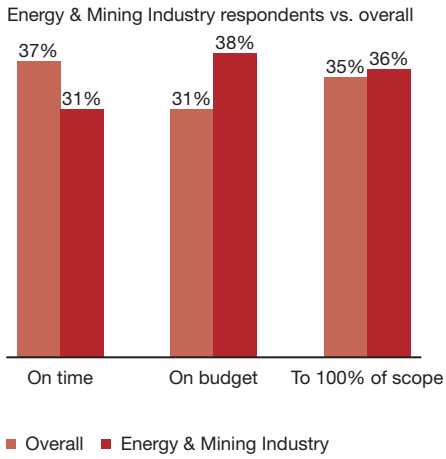
Fig. 7: Companies using a single, multi-year roadmap for overall business strategy (% E&M vs. all companies)

	Yes	No	Don't know
E&M companies	65%	24%	11%
All companies	61%	25%	14%

Executing the roadmap requires continued focus

Few E&M companies—and few companies in our overall survey group—have mastered the execution phase of improving digital IQ. Only about one-third of E&M companies say they routinely bring their strategic IT initiatives in on time, on budget, and to 100% of scope (see Fig. 8, below). But companies overall report only slightly better results in bringing in projects on schedule, and slightly worse at sticking to budget.

Fig. 8: Frequent digital conversations can lead to well-defined strategies, less ambiguity and fewer delays or unplanned expenses; 38% of industry respondents deliver initiatives within budget



These results underscore two needs—to improve mobilization prior to execution, and to have more frequent conversations during the strategy-setting stage. Almost one-third of E&M companies blamed lack of properly skilled teams for failure to execute their IT initiatives successfully, while substantial percentages also singled out inflexible or slow project lifecycle processes, ineffective project management or governance, and ineffective third-party partners.

Improving digital IQ: Four key challenges

What can E&M organizations do to improve their digital IQ? We have identified four challenges executives should address if they are to reap the benefits and avoid the pitfalls:

1. ***Empower employees:*** E&M companies should consider which mobile skills, tools, and applications will be most beneficial to improve processes and enhance collaboration.

2. ***Prioritize mobilization:*** For too many E&M companies, mobilization still does not translate into strong execution. They should prioritize learning to apply these basics to IT development.

3. ***Embrace Big Data:*** E&M companies should prioritize analyzing and gaining insight from data generated by their IT initiatives if they are to develop a virtuous cycle of IT advancement and integration.

4. ***Measure impact:*** They should also better gauge the impact of innovation on value added—yet only 31% of E&M companies say they do so, compared with 44% of our overall survey group.

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