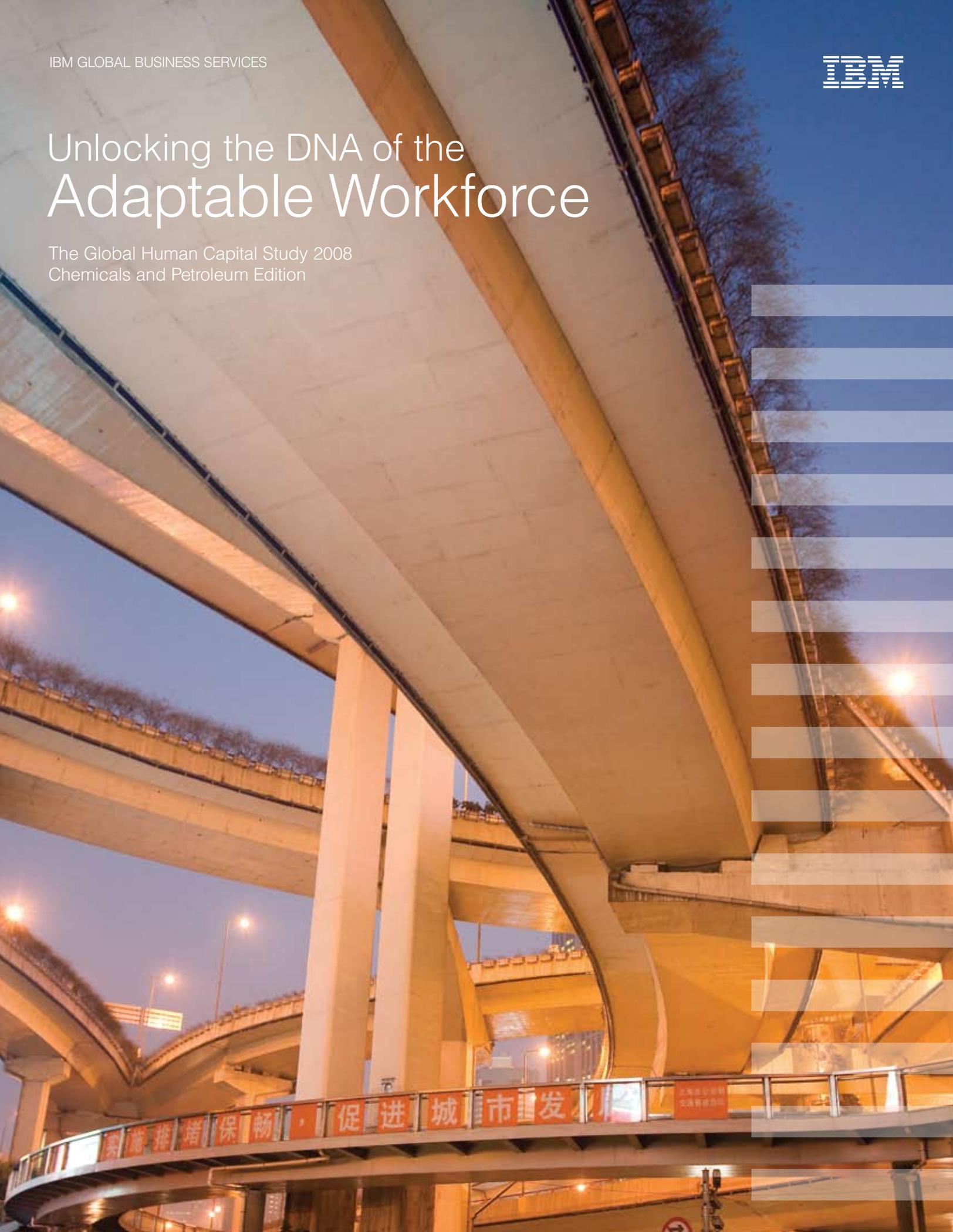


# Unlocking the DNA of the Adaptable Workforce

The Global Human Capital Study 2008  
Chemicals and Petroleum Edition



实施排堵保畅，促进城市发展

北京城市照明  
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# Unlocking the DNA of the Adaptable Workforce

*For chemical and petroleum executives, the pace of change is unrelenting – evident from virtually every vantage point. Geographical expansion, market shifts, tougher regulations, geopolitical uncertainties and more complex operating environments are intensified by a troubling shortage of much-needed skills. As executives grapple with these issues, they must closely examine their talent pool, and develop strategies focused around four proficiencies: an adaptable workforce, effective leadership, an integrated talent management model and workforce analytics.*

A host of factors impact the Chemical and Petroleum (C&P) industries' labor force. Global expansion, competition from external markets and increased energy demand are compounded by mounting environmental and geopolitical concerns, plus an aging talent pool. Furthermore, as the industries extend their global footprint, building and retaining valuable skills and knowledge becomes more difficult, due in part to the industries' image, the large number of retiring workers, and the move to unfamiliar or undesirable locations. This makes it more critical – and expensive – to attract and retain the highly skilled worker, and develop the leadership necessary to manage growth.

To deepen our understanding of the talent-related issues facing today's industry leaders, IBM conducted The IBM Global Human Capital Study 2008, "Unlocking the DNA of the Adaptable Workforce" – an effort that involved interviews with 404 senior Human Resources (HR) executives from 40 countries. Among the study's participants were 25 executives in the C&P industries representing energy, chemical, petroleum and engineering services organizations. Our conclusions combined quantitative and qualitative survey information supported by financial data, secondary research and case studies.

The study revealed four attributes that companies – including C&P enterprises – need in order to attract, cultivate and maintain global, highly skilled talent.

While these capabilities are valuable for any industry, they hold specific implications for C&P companies – not only in terms of the day-to-day management of human resources, but also from the standpoint of remaining competitive in today's rapidly evolving and increasingly technology-dependent marketplace. As our study confirmed, effective talent management is now a C-Suite concern that extends across geographical, virtual and operational boundaries.

### **Confronting change**

C&P products – from gasoline and fuel oil, to lubricants and specialty chemicals – are critical to the world's economic and societal growth. To remain competitive on a global, increasingly flatter playing field,

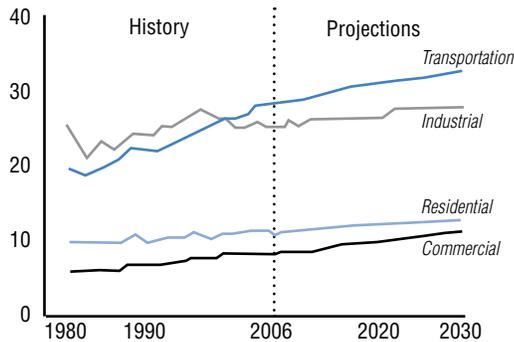
companies are extending their reach into untapped locations – pulling resources from remote areas like the North Sea, Russia, North African countries and the Balkans, for example.

The energy infrastructure required in areas such as liquid natural gas (LNG) is expanding – compelling many companies to form complex partnerships with governments, local utilities or other businesses. Developing nations, where the greatest expansion is occurring, have limited infrastructure, and require significant investment in order to do business or increase capacity. Other changes include the constant quest to increase feedstocks, create safer operating environments, and support sustainable growth in undeveloped or unstable regions.

In fact, according to the Energy Information Administration (EIA), since 2002, U.S. cement, iron and steel prices have increased – by 8 percent in 2003, 10 percent in 2004, and 31 percent in 2005. After slight declines in 2006 and 2007, construction costs, coupled with rising energy consumption (see Figure 1), are causing higher plant construction costs.<sup>1</sup>

Costs are not the only issue; the logistics involved in these tasks can be daunting. Regulatory constraints and geopolitical concerns are constant challenges. At the same time, the volatility resulting from erratic oil prices, environmental issues, the pressure to utilize alternative energy sources and the commoditization of specialty chemicals have made it harder for C&P companies to accurately calculate supply

**Figure 1. Delivered energy consumption in the U.S. by sector.**  
(Quadrillion BTU)



Source: EIA Annual Energy Outlook 2008. <http://www.eia.doe.gov/oiaf/aeo/index.html>

and demand. These dynamics test industry leaders to build, manage and maintain a labor force that can continually step up to the changes and complexities of their markets.

### Filling the talent pool

The changes facing the C&P industries have caused a trickle-down effect – creating or exacerbating talent management challenges. Global expansion poses a serious dilemma for workers, when often the skills needed are not locally available. Yet the need is great – and growing.

Worldwide, C&P shortages of skilled labor and the aging workforce are expected to approach 15 percent by 2010. For example, as many as 40 percent of U.S. petroleum engineers will retire by 2014<sup>2</sup> – placing more pressure on companies to capture, retain and pass on knowledge from these employees.

While more than US\$100 billion liquid natural gas (LNG) projects in Australia, Papua New Guinea and the Timor Sea are planned over the next decade, severe labor shortages and costs may delay these efforts – tightening global supplies.<sup>3</sup>

As the international oil industry struggles to attract and maintain skills, increase exploration and boost production, C&P companies must also wrestle with negative perceptions about their businesses. Recent graduates may be reluctant to join what they believe are less desirable industries than, for example, high-technology.

Not surprisingly, the costs to attract, develop and retain top, highly skilled talent have increased – sometimes forcing companies to outsource skills that ideally should be developed and kept within the confines of the business. However, outsourcing doesn't always provide a solution. For example, a survey of oil and gas operators and related contractors in the Aberdeen area, the UK hub for the North Sea oil industry, found that nearly 90 percent of contractors were themselves looking for new staff.<sup>4</sup>

In spite of these factors, C&P enterprises have the opportunity to truly transform how they approach talent management – equipped with the insight, resources and vision needed to confidently face the future. As our research confirmed, getting there will require companies to develop and refine four key competencies:

- An adaptable workforce that can rapidly respond to changes in the business environment
- Effective leadership to guide individuals through change and deliver results
- An integrated talent management model that addresses the entire employee lifecycle
- Data and information to deliver strategic insights and measure success.

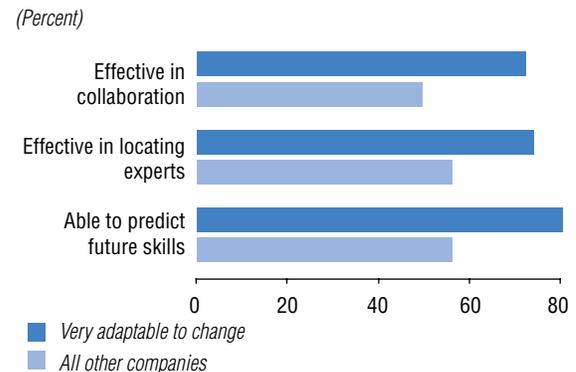
### An adaptable workforce that can rapidly respond to change

Many dynamics surround their businesses; yet when asked to rate their employees' ability to adapt to potential changes in the business, only 13 percent of C&P executives indicated that their labor force was very capable of handling change. Across all industries surveyed, those who did view their companies as adaptive to change were more effective in their ability to collaborate, find top talent and anticipate skill requirements (see Figure 2).

Through our research, we confirmed that an adaptable

In IBM's recent study on human capital management, only 36 percent of C&P organizations reported that their talent management strategies are both driven by – and provide input into – their overall business strategy.

**Figure 2. Executives who view themselves as adaptive to change are more likely to collaborate, find experts and anticipate future skill needs.**



Source: IBM Global Human Capital Study 2008.

workforce depends on collaboration, identifying and connecting skills, and predicting future skills requirements.

#### Collaboration

Having the right people with the right skill sets is only half the battle; companies must be able to connect them to others within and outside the organization to access and share information and ideas, and solve problems. Still, only 8 percent of C&P executives in our study believe they have mastered this capability.

Primary barriers cited were heavy workloads, ineffective performance measures and organizational silos that isolate people and information. Two-thirds of executives were concerned that their companies' existing technologies did not support effective collaboration – one of the imperatives of effective talent management – and were worried about possibly jeopardizing their business's intellectual property.

### ***Identifying and connecting skills***

For today's C&P businesses, the ability to identify and link experts is critical. Even so, when asked, "Which of the following does your organization use to identify key skills and subject matter experts?" 48 percent of the C&P respondents in our study indicated that they rely on employee directories.

Using emerging technologies like Web 2.0, today's industry leaders are crafting ways to connect previously isolated individuals and groups across organizational boundaries, functions, time zones and cultures. With these capabilities, they can share knowledge throughout their global enterprise – employing corporate public data and information from aggregated social networks to quickly identify and locate experts with specific talents and skills, and rank them based on experts' recommendations

### ***Predicting future skill requirements***

As C&P companies enter new or less developed markets, the resources they will need are not always clear. Yet the ability to assess the type and composition of talent they require to expand and grow can give C&P companies a head start in adjusting to rapidly changing business circumstances.

While only 20 percent of the C&P executives in our study believed their company had a very good understanding of the resources they will need over the next three to five years, those that indicated their business was very capable of adapting to changing business conditions also considered their enterprise to be effective in predicting future skills requirements.

In summary, we believe that C&P enterprises can improve workforce adaptability in three ways:

- Foster collaboration through communities, develop valid performance measures and embed collaborative tools into day-to-day processes.
- Develop an expert location capability that combines formal skills management efforts with employee profiles and other social networking technologies.
- Reassess skill needs based on likely future business scenarios for a changing industry; train, partner and/or hire based on those projections.

### **DuPont: Adapting to change and ramping up skills**

As its industry becomes more globalized, U.S.-based E.I. du Pont de Nemours and Company (DuPont), one of the world's leading science-based chemical companies, is adapting to change. In June, DuPont opened its seventh research center outside the U.S., the DuPont Knowledge Center in India.<sup>5</sup> The site will ramp up to an estimated 500 scientists by 2010.<sup>6</sup> These experts will mostly be recruited from India. The Center also intends to partner on an ongoing basis with local universities and scientific institutions to conduct its research.

Increasing its number of research locations allows DuPont to create an environment where the world's top scientific talent can innovate faster. By locating in India, DuPont is able to utilize resources not previously available to the company – including both hired employees and university personnel.

## Effective leadership to navigate change

Some of the very factors that have left C&P companies struggling to build and retain an adaptable workforce (global expansion, aging workers and declining graduation rates for industry skills in western countries, for example) have also brought them up short at the top – lacking enough leaders with the vision, focus and insight to carry the business safely and systematically forward.

While developing and increasing leadership is a concern shared by many of the companies we studied, it presents special challenges for C&P executives. In fact, 76 percent of those we interviewed cited building leadership talent as their most pressing issue (see Figure 3).

As corporations – including C&P companies – expand and integrate their businesses across geographical and virtual boundaries, the need to target, develop and connect talent on a global scale becomes critical.

Today's leading C&P enterprises operate from a broad perspective – and manage their talent accordingly. They target “rising stars” who are willing and able to think independently, and to guide a diverse group of talent – teams of employees who may be in different locations, and come from various backgrounds and cultures. C&P leaders are proactive. They believe in “learning by doing,” mentoring and job rotation. And they don't hesitate to turn to others in the business. They are acutely aware of the importance of grooming good talent, and giving people opportunities to apply and enhance their skills, and optimize their leadership potential.

Our research tells us that managing a global talent pool calls for C&P leaders who can:

- Develop and communicate a strategic vision, engage and energize employees and help improve their performance.

**Figure 3. As with other industries, leadership development is by far the biggest workforce challenge for C&P companies.**

(Percent)



Source: IBM Global Human Capital Study 2008.

- Embed collaboration capabilities into everyday work activities and processes, as well as in formal performance measures.
- Serve as role models and mentors to individuals who are increasingly dispersed across countries, regions and geographies; provide guidance and structure to employees who represent various age groups, experience levels and cultures.
- Evaluate performance levels based on valid performance goals that recognize knowledge contributors and encourage employees across the enterprise to create, share and apply insights.
- Execute on strategies with speed and confidence – across time zones, cultures and organizational barriers.

### **An integrated talent management model**

As mentioned earlier, C&P companies find it especially hard to retain valued employees. This is due in large part to changing demographics and high turnover rates, both of which sharpen the focus on attracting and keeping good talent, and preserving knowledge. According to our study, turnover challenges are not expected to diminish in the foreseeable future. When asked about the level of employee turnover in their organization in the past two years, over half of the C&P respondents we interviewed told us that it hadn't changed. The industries' image also makes it problematic to draw in new talent.

When we queried C&P executives about the characteristics essential for helping to retain employees, the top three answers were new and challenging responsibilities (56 percent), clear career growth opportunities (48 percent) and compensation and benefits equal to or greater than industry and/or local norms (48 percent, see Figure 4). We also confirmed

that a company's corporate image plays a key role in drawing in talent. In fact, when it came to attracting employees, our respondents placed having a positive corporate reputation at the top of their list.

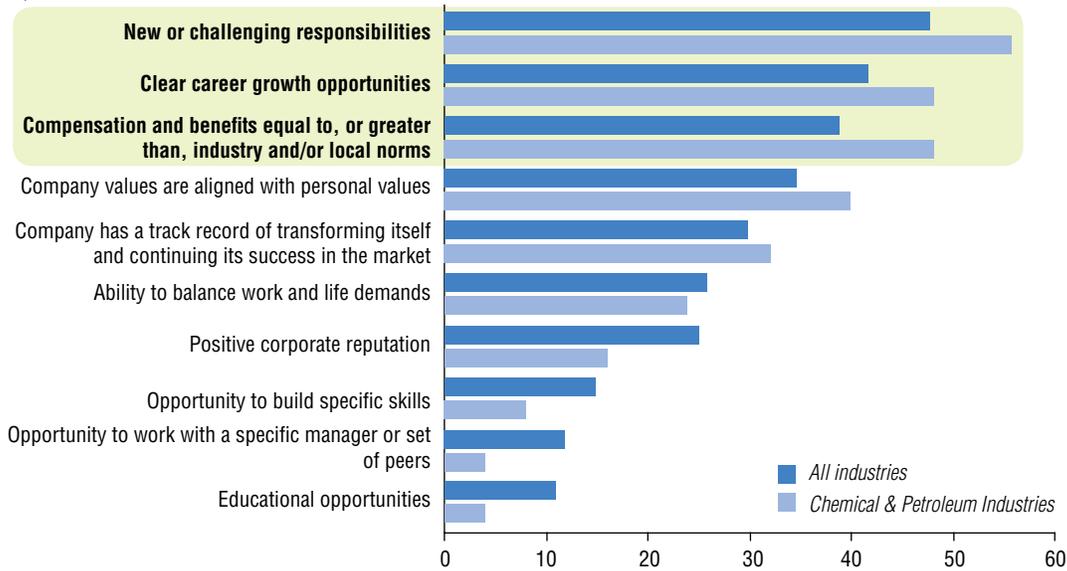
Yet according to our study, only 11 percent of C&P executives consider their companies to be very effective in their ability to recruit desired employees in a timely and consistent manner. Just 13 percent maintained that their organizations are very effective in attracting, retaining and fully utilizing talent.

### **Nexen Petroleum: Developing local Yemeni skills through local partnerships**

When Canadian Nexen Petroleum began its Masila Block project in Yemen in the early 1990s, it encountered local skills shortages. The project is a large-scale oil exploration, development and terminal operation. Working with local and national governments to increase the oilfield skills of its employees, the company recruits and trains new employees – teaching them English to create a common language, enabling them to select a discipline, learn Health Safety and Environment (HSE) Management System practices, and mentoring on the job to become contributors to the project. The local Nexen workforce eventually exceeded the number of expatriate employees, and now accounts for more than 70 per cent of the operational workforce – almost 1,000 people. Nexen has created a culture focused on problem-solving, safety and learning using local customs and governments to create long-term relationships both inside and outside the company.<sup>7</sup>

**Figure 4. C&P companies believe growth opportunities, challenging responsibilities and compensation are key to retaining employees.**

(Percent)



Source: IBM Global Human Capital Study 2008.

Facing the future, C&P companies will be well advised to:

- Be creative and market to potential employees the same way you would market to a customer.
- Freshen the company's image with innovative communications that reach and appeal to the next generation of workers.
- Look to technologies to support workers who require alternative work schedules.
- Find ways to preserve the knowledge and skills of valued workers as they prepare to exit the enterprise.

### Workforce analytics that can deliver strategic insight

Traditionally, the HR organization has assumed a relatively supportive role – assisting business units when asked to do so, and valued largely in terms of the ability to respond to inquiries, address and resolve personnel issues, and manage employee-related information.

Today, however, HR plays an increasingly critical – some would say fundamental – part in the overall business strategy, placing it on a level with financial and operational functions. Our study confirmed that

leading HR organizations have spent the last several years looking to deliver better strategic insights and analysis. They understand that HR must take a proactive stance, and that HR professionals should make a clear contribution in charting the direction of the business. They view actionable employee information as a corporate asset, and the well-being of the workforce as an executive-level responsibility that crosses operations.

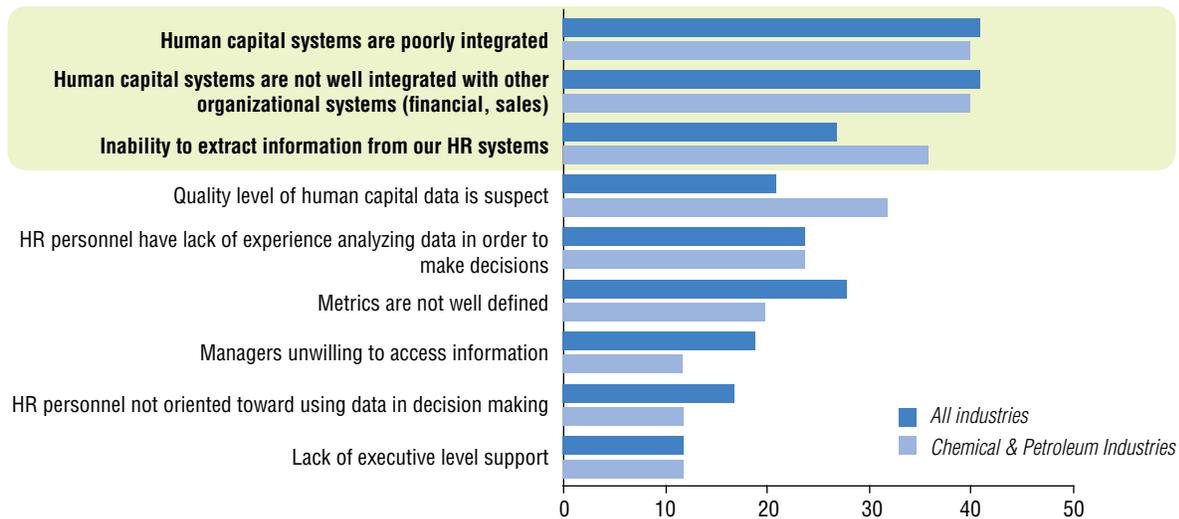
But there are challenges. Many of our respondents indicated that their human-capital applications are not well integrated – with one another, or with other key functions such as Finance, Sales and Marketing (see Figure 5). They also told us that these systems lack the ability and support to enable true insight – failing to provide the necessary information quality, metrics, education and executive support.

The ability to analyze and act on workforce-related information is clearly on executives' minds. When asked what steps their organization was taking to improve its ability to use human capital data and information to make workforce-related decisions, 56 percent of the C&P executives we interviewed stated that deploying tools to make it easier to analyze human capital data and information was paramount, followed closely by integrating/unifying human capital systems across the organization (48 percent) and educating HR personnel on using/extracting information from HR systems (44 percent).

Utilizing human capital data and information is obviously more than a technology issue; it encompasses training and ongoing support for HR employees. It should also be integrated into the hiring practices of HR to provide insight, and support the business case for identifying, rewarding and retaining solid talent.

**Figure 5. C&P organizations identified system integration issues as the greatest barriers to developing and using workforce insights.**

(Percent)



Source: IBM Global Human Capital Study 2008.

Considering these issues, C&P companies are well advised to:

- Place human capital data on the same level as the timeliness, quality and accuracy of financial or operational information.
- Implement tools that make it easier for both HR personnel and line management to access and apply workforce-related data.
- Provide training, mentoring and other types of support to HR personnel to augment and enhance analytic tools and approaches.
- Incorporate analytic skills into the hiring, development and rotational plans of the HR organization.

#### **Where do you stand? Take the test**

- Is talent management part of your C-suite agenda, and is it directly tied to your overall business strategy? Is it part of an overall talent model addressing the entire employee lifecycle?
- Is your talent pool prepared to deal with and respond to unpredictable changes in the marketplace? Do you have incentives to keep employees motivated?
- Do you have the ability to recognize the need for – as well as attract and retain — the best skills?
- Have you committed to creating a collaborative, learning-based culture that enables employees to capture, preserve, access and share knowledge?
- Does your organization employ advanced analytic tools to organize and refine talent-related information, and support strategic insight?

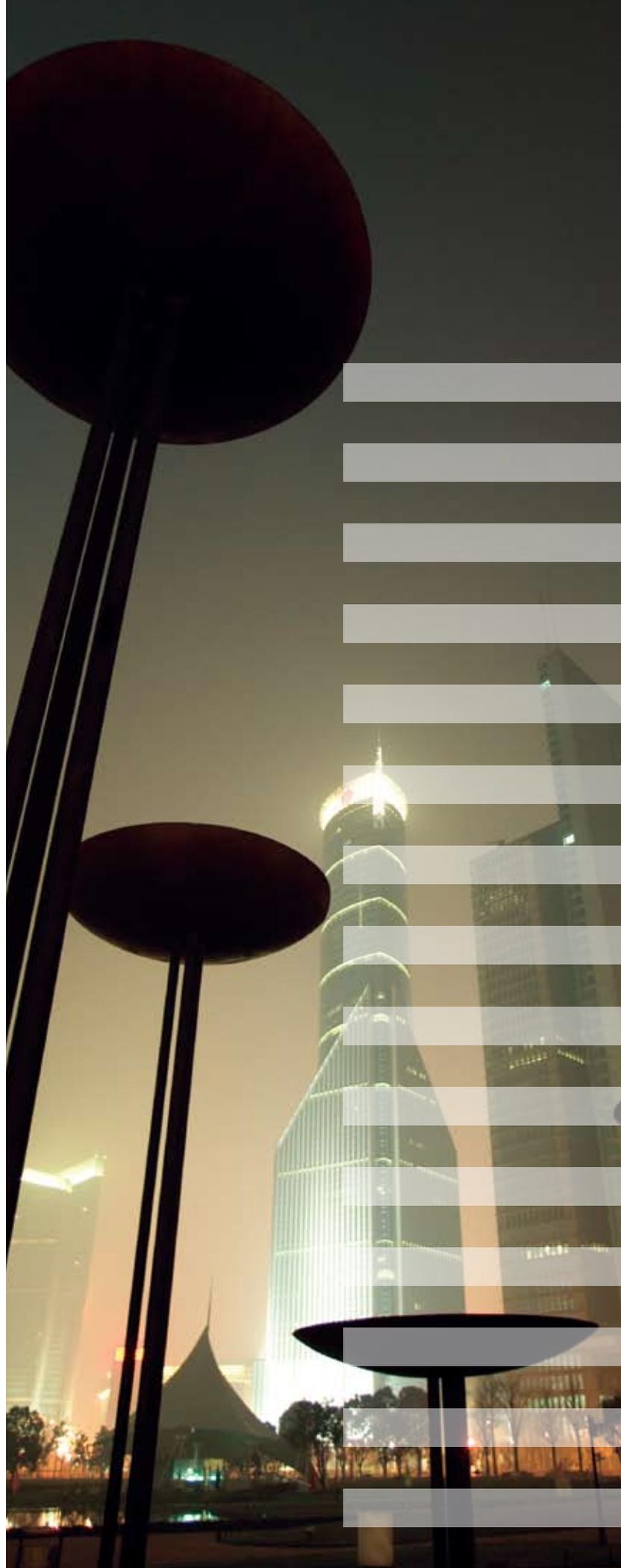
## Conclusion

C&P executives face unprecedented change in every area of their businesses. Globalization, the restructuring of markets, stricter regulations, geopolitical worries, the volatility of supply and demand and a smaller skills force all play a part in an increasingly challenging arena.

Given the dynamics of their industries, C&P leaders need to rethink and continually realign their workforce vision in the context of the overall business vision – elevating the HR function to its rightful place on a fiercely competitive, rapidly changing global stage. This requires strategies and tools that support collaboration, enable new opportunities, encourage learning, and help predict and attract the right skills. These competencies also demand leadership that is prepared to meet the responsibilities of guiding a global, well integrated C&P enterprise.

With this in mind, we advise C&P enterprises to:

- Look beyond the boundaries of a single function or organization to identify talent in the context of a global staffing model.
- Search for experts in developing leadership skills among employees at all levels.
- Capture knowledge at its source and encourage its reuse.
- Create relationships with sources such as universities to create a pipeline of talent through scholarships, internships and other activities to increase opportunity awareness.
- Provide the day-to-day capabilities to support collaboration, locate skills, analyze the talent pool and better utilize the limited resources available.



## CONTACT US

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The full IBM study, “Unlocking the DNA of the Adaptable Workforce – The Global Human Capital Study 2008,” covers a broad set of industries, and includes an online assessment tool you can use to compare your enterprise to our global data set. To download a copy, please go to: [ibm.com/services/us/gbs/bus/html/2008ghcs.html?cntxt=a1005263](http://ibm.com/services/us/gbs/bus/html/2008ghcs.html?cntxt=a1005263)

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