

THE ENTERPRISE OF THE FUTURE

CHEMICAL AND PETROLEUM INDUSTRIES EDITION



GLOBAL CEO STUDY

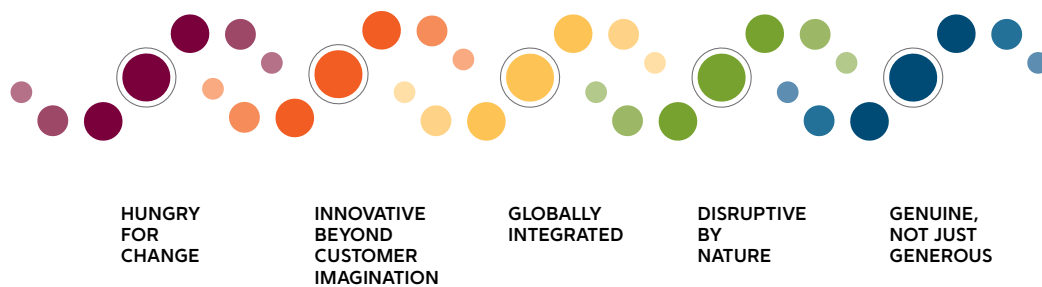
SURVEY SAMPLE

Our survey sample includes CEOs from chemical companies, petroleum companies, services companies, energy and petroleum chemical product companies. Two-thirds of the respondents represent multinational companies; only 14 percent lead national organizations. Twenty-four percent of respondents are based in the Americas; 37 percent in Europe, the Middle East and Africa; and 39 percent in Asia Pacific. Almost all of these leaders were interviewed by IBM executives in face-to-face interviews lasting one hour.

INTRODUCTION

What will the Enterprise of the Future look like? To answer that question, we spoke with more than 1,130 CEOs, general managers and senior public sector and business leaders from around the world as part of our biennial Global CEO Study series.¹ Across industries, geographies and organizations of different sizes, the view was surprisingly similar: the Enterprise of the Future is hungry for change, innovative beyond customer imagination, globally integrated, disruptive by nature, and genuine, not just generous.

However, these aspirations hold specific opportunities and challenges for the Chemical and Petroleum (C&P) industries. Based on the responses of the 42 C&P CEOs who took part in our study, we've taken a closer look at the implications for C&P companies. These findings draw on the rich insights from our CEOs through statistical and financial analyses as well as the voices of the CEOs themselves.





HUNGRY FOR CHANGE

C&P CEOs expect a significant and increasing level of change over the next three years, and their responses show a 19 percent gap between required change and their past success at managing it. Will they be able to shrink this growing gap?

C&P CEOs are wrestling with change on many fronts, and the top external forces impacting their businesses are: volatile market demand, escalating talent shortages, environmental issues and a competitive landscape that is more global than ever. The impact of these shifts is dramatic. More than eight out of ten C&P CEOs anticipate substantial change for their organizations over the next three years.

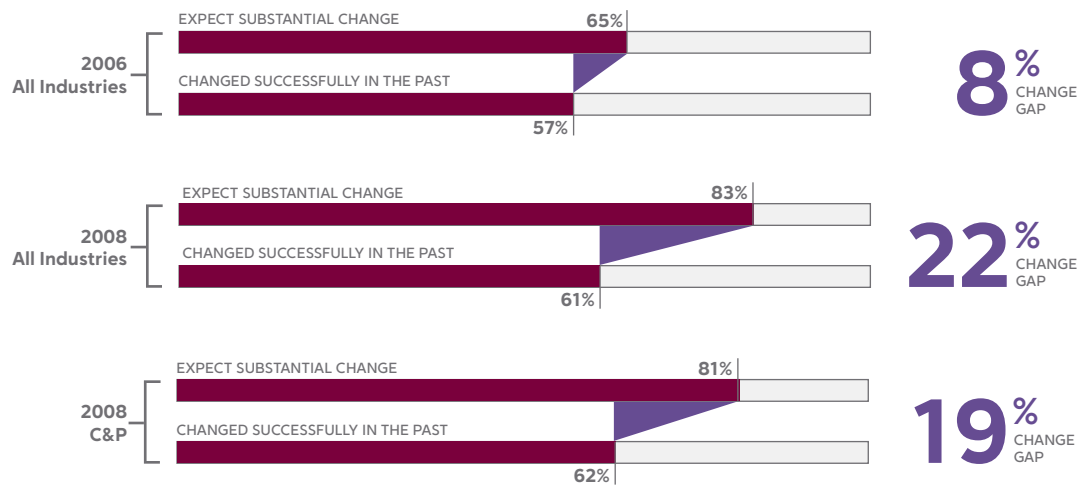
Yet only 62 percent say their companies have managed such change successfully in the past (see Figure 1), leaving a “change gap” of 19 percent. C&P companies’ ability to change is simply not keeping pace with the level of change they’re confronting. In fact, the change gap across all industries has more than doubled since 2006.

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“We must grab the opportunity to go global and adopt significant changes to compete in the global markets.”

CEO, Asian rubber company
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FIGURE 1 THE CHANGE GAP

The change gap across all industries has more than doubled in the past two years.



Although C&P outperformers expect similar levels of change, their change gap is much smaller than that of underperformers (12 percent versus 25 percent).² Why? Outperforming organizations are significantly better than their peers at successfully navigating change.

WHEN CHANGE BECOMES THE STRATEGY

Today's oil prices top the news as they reach new highs. Demand is higher, and the ability for supply to meet demand is worsening. Asia's rapid economic development and energy demand are a primary cause of higher oil prices. In the past year, energy prices have nearly

doubled.³ Specialty chemical companies are considering outsourcing the production of their own chemicals or becoming contract manufacturers for others to enter growth markets.⁴ The ability to adapt to continuous change clearly needs to be a strategy for the C&P Enterprise of the Future because there are no signs the rate of change will abate any time soon.

To equip their organizations, company leaders need to identify visionary leaders to challenge current practices, insert them in key business units and partnerships and give them freedom to maneuver. Companies must also develop the process speed and flexibility to exploit viable ideas quickly. Flexibility comes from a globally integrated foundation of standardized processes and technology. This provides a basis from which CEOs can make the key moves to disrupt the status quo of their businesses and their industry as a whole.

C&P companies need to be experts at planning and executing enterprise-wide change. Each change initiative should have a documented strategy that ties the change to its business value drivers and includes the specifics about what will change and how. Leadership and responsibilities should be clear – and merged with the normal business metrics to produce accountability for making change happen. If C&P companies are to close their change gap, they will need to become masters at anticipating change and determining how best to respond.

Case study

ACCESS INDUSTRIES: ACQUIRING GLOBAL BREADTH AND DEPTH

Access Industries is a company with both a global and cross-industry perspective. Its strategy has resulted in the acquisition of a diverse portfolio, including:

- Aluminum: Formed from a series of mergers and acquisitions, United Company RUSAL is the world's largest vertically integrated aluminum and alumina producer.⁵
- Oil and Gas: TNK-BP is a leading, vertically-integrated oil company formed from Russian oil and gas assets of BP, AAR (a venture with Alfa Bank, Access Industries and Renova Group) and the recent acquisition of part of Slavneft.⁶
- Petrochemicals: LyondellBasell is one of the world's largest polymer, petrochemical and fuels companies.⁷
- Energy and Power: Access Industries partnered to create Bogatyr Access Komir LLP, a coal industry leader in Kazakhstan that supplies coal to Access Energy Group power plants and others.⁸
- Telecom and Media: The company has invested in several large media companies including Warner Music Group.⁹
- Real Estate and Hospitality: It has also invested in commercial real estate and hotels in the Americas and Europe.¹⁰

Access Industries has successfully brought together diverse partners in untapped markets to transform itself into a major player across a broad spectrum of products within just the last twenty years.



INNOVATIVE BEYOND CUSTOMER IMAGINATION

C&P investment in rising consumer purchasing power is extremely high and still growing. Could this intense focus on new markets cause C&P companies to neglect the needs of increasingly informed and sophisticated consumers?

C&P companies serve several types of customers, all with specific needs. Customer types include consumers, business to business customers, and business to government customers. C&P CEOs are extremely upbeat about rising purchasing power among consumers in developing economies and increasing wealth in developed nations. In fact, 86 percent of C&P CEOs believe this trend will have a positive impact on their businesses, as compared to only 67 percent across all industries. Consumer prosperity increases miles traveled and energy consumed by every type of customer.

As consumers around the world become more prosperous, they're also becoming more demanding and better informed, creating higher expectations in every aspect from products to the social

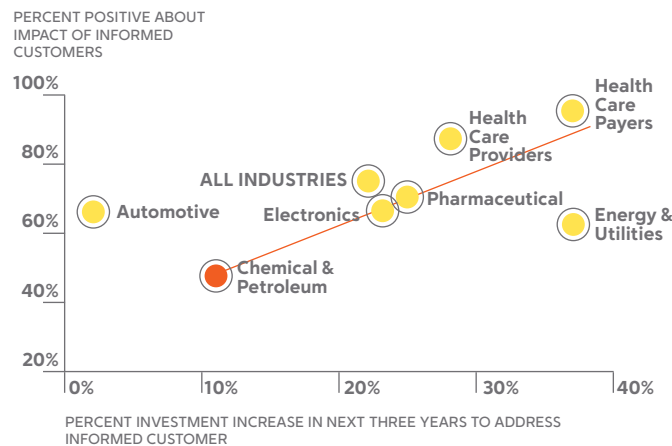
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"Our ability to move quickly in the Chinese market will have a very major impact."

CEO, Chemical manufacturer
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responsibilities of companies. Across industries, companies are wrestling with new ways to serve the consumer who now has unprecedented access to information and an increasing interest in collaboration across social, environmental and business networks. However, since C&P companies' relationships with the end consumer are less direct than those in other industries, the impact of this trend seems less critical. As a result, C&P CEOs are more hesitant about this second trend – only 67 percent view it as positive. In fact, among all the industries we studied, C&P CEOs report both one of the lowest positive impacts from the informed consumer and the lowest increase in investment in this trend (see Figure 2).

FIGURE 2 C&P COMPANIES PERCEIVE LESS CONSUMER INFLUENCE

C&P investment in informed consumers is less than other industries.



In terms of spending related to these two customer trends, C&P CEOs are decidedly more focused on the opportunities associated with rising prosperity worldwide. Over the past three years, they have devoted 49 percent of their total investments to exploit this rising prosperity – almost twice that of other industries.¹¹ That's five times more than what they plan to invest in the informed consumer.

Could this lack of investment in the informed consumer be at odds with C&P priorities? As consumers become more environmentally aware, their perceptions can affect everything from product buying decisions to approval of new facility locations to the ability to recruit younger workers with key skills. Although their enterprise customers often have a more direct relationship with the consumer, C&P companies cannot afford to ignore today's more informed and engaged consumer.

C&P COMPANIES AS COLLABORATORS

Greater innovation across both developed and developing markets – for both more prosperous and more informed consumers – depends on the C&P industries' ability to develop and apply customer insights. C&P OEMs must consider how customer information is gathered and analyzed – and have processes in place to apply the resulting insights. This information provides an increased understanding of a company's role in its community and new opportunities to explore environmentally friendly products.

For C&P industrial customers, collaboration remains critical and should be proactively pursued. As Patricia Woertz, Archer Daniels Midland Company's CEO and president, explained: "All the answers won't come from big research labs. Partnerships ... are anywhere from universities to small labs, to small entrepreneurs, to sometimes even one-off individuals, whether they come to work as employees or they're really working in a partnership long-distance."¹² Collaborative relationships should be beneficial to all the companies involved and often result in solutions not possible or timely enough when companies go it alone. C&P companies should focus on making partnerships second nature – proactively approaching customers to co-develop ideas for mutual benefit, developing repeatable processes for external partner management and leveraging tools to support co-development of solutions.

Case study

BASF SE: PARTNERING TO INNOVATE

BASF is a major chemical company serving customers worldwide that has learned to take advantage of partnerships to increase its revenue. Since 2002, BASF has nearly doubled its sales, and profitability is up 1.7 times.¹³ It uses a four-part growth strategy to guide every decision. Its customer premise is: "We help our customers to become more successful."¹⁴

To drive profitable growth, the company collaborates with customers to develop new solutions unique to their specific requirements and to strengthen both the customers' and BASF's competitiveness. BASF customer partnerships have yielded several new ideas:

- BASF Coatings' paint specialists worked with Ford to develop the brilliant signature color "Electric Orange" for its Focus ST. The partnership also launched a new paint application process that preserves the finish and minimizes the physical space required to apply the paint.¹⁵
- At Renault Revoz, BASF improved painting process efficiency and is paid for each perfectly painted vehicle rather than for the paint itself.¹⁶
- BASF and adidas partnered to develop a specialized sole for the a3: running shoe that meets the requirements for both endurance and cushioning.¹⁷

BASF has parlayed their operational, design and technical skills into partnerships with its customers to create mutually beneficial growth relationships.



GLOBALLY INTEGRATED

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“To benefit from global integration, talent is our top priority. Each link, from research and development to product sales, cannot go forward without talent. Although we are recruiting, we still have a shortage.”

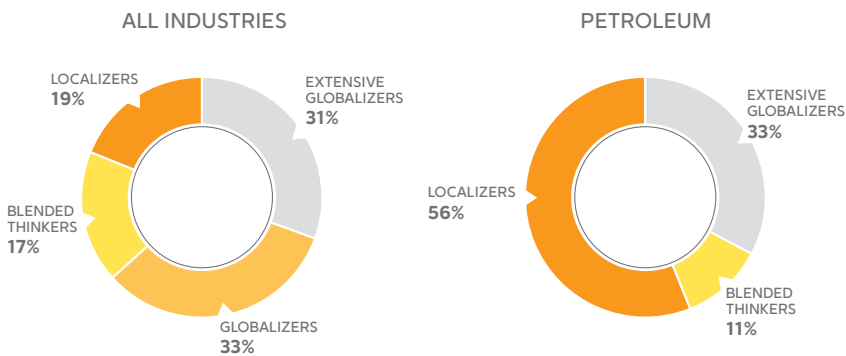
CEO, specialty chemicals company, China

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C&P CEOs are well aware of the impacts of globalization on their industries. But what kinds of changes are required to overcome skill shortages and become more globally integrated?

C&P companies are clearly global, multinational corporations, but according to our survey, petroleum companies tend to be less globally integrated than those in other industries. When analyzing characteristics such as partnering, standardization, global branding and operational optimization, only 33 percent of petroleum CEOs were categorized as globalizers or extensive globalizers. These percentages are far lower than the 64 percent of companies across the full sample that were included in these two categories (see Figure 3).

FIGURE 3 PETROLEUM COMPANIES' BUSINESS DESIGNS ARE LESS GLOBAL
 Cluster analysis shows fewer globally integrated characteristics.¹⁸

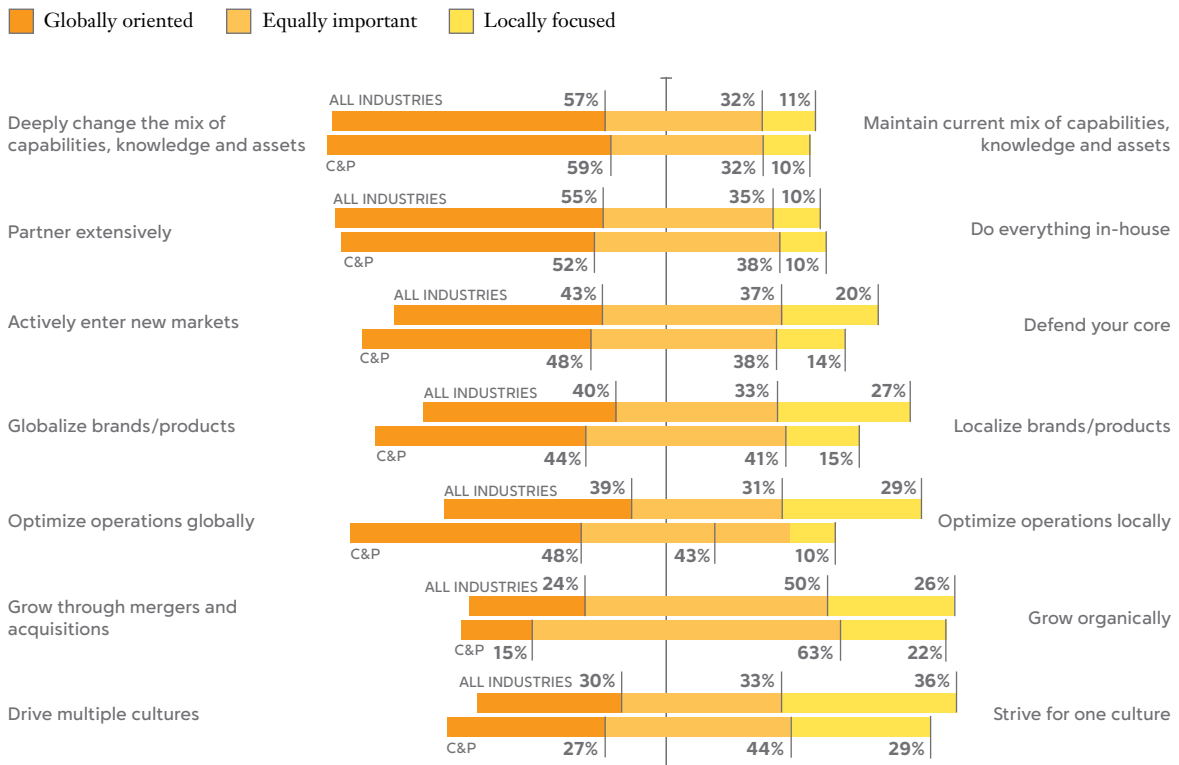


Skill shortages were rated by CEOs as the top barrier to global integration, which corresponds to the high C&P CEO focus on changing the mix of capabilities, knowledge and assets. C&P CEOs are also focused on partnering, optimizing operations globally and globalizing their products and brands (see Figure 4).

Insufficient talent – particularly management skills – is making global integration more difficult for C&P companies. According to a recent IBM Institute for Business Value study on human capital management, 76 percent of C&P human resource executives cited building leadership talent as the number one capability challenge facing them today. Great organizations need to develop leaders who can deliver business results while guiding employees through the

FIGURE 4 C&P CEOs ARE MOVING TOWARD GREATER GLOBAL INTEGRATION

C&P CEO future priorities to become globally integrated indicate a more global focus.



uncertainty of business today. Highly skilled leaders are critical to an organization's ability to face the challenges of globalization and increasing demand for innovation. Future leaders for the new global marketplace need to excel at establishing a vision, collaborating and executing on a more complex, global stage.¹⁹

For oil and gas companies, the challenge is particularly significant. Almost half of the aging workforce in exploration and production activities will retire in less than a decade.²⁰ And companies are taking serious steps to fill the gaps. Energy majors are increasing recruiting efforts. According to Darci Sinclair, a Shell spokeswoman, Shell is attracting recent graduates by “building strong and more extensive relationships with key universities, intensifying campus recruiting activities and increasing involvement in the classroom.”²¹

The new workforce will need important new attributes such as the ability to work virtually and across diverse cultures. And key to enabling this workforce to reach its potential will be the building and rotation of appropriate leadership talent, with an emphasis on attracting quality executives from both inside and outside of Chemical and Petroleum, and nurturing new, young graduates to fill the talent pipeline. Priority skills that will need to be recruited and developed will vary according to region, availability and market demand.

C&P ENTERPRISES AS GLOBAL INTEGRATORS

C&P companies must work toward global integration, not just creating a global presence. C&P CEOs’ rank the globalization of products and optimization of operations higher than other industries, indicating global integration efforts are still a work in progress. Evolving economies and markets will fuel new products, services and business models. The challenge faced by C&P companies will evolve from achieving a global presence to effective global execution.

Optimizing operations requires underlying integration capabilities. An enterprise-wide infrastructure of standard business practices and information allows companies to adapt as business changes occur. In a recent IBM study on risk management, outperforming companies were one-third more likely to have standard processes, global process ownership and global information standards. And they were twice as likely to have global processes in place.²² C&P companies understand the necessity of an integrated infrastructure to support operations and need to continue the establishment of global, cross-enterprise standards through process ownership, simplifying enabling systems and the associated organizational structures. Standardization of the business and mechanisms such as worldwide “centers of excellence” will ease integration challenges and help create differentiating capabilities, knowledge and assets from around the world.

Case study

DOW: GLOBALLY INTEGRATING IP

Dow is a diversified chemical company with annual sales of US\$54 billion and 46,000 employees worldwide that deliver products and services across 160 countries.²³

Dow, a top research firm, has a rich and diverse portfolio that included more than 29,000 patents in 1992. The company decided, at that time, to explore new ways to pull together and mine its intellectual property (IP) from across the company using a center of excellence type model. By standardizing their IP business practices and information, Dow created a way to exploit its significant intellectual assets.²⁴

The company formed a geographically diverse team to leverage IP both internally and externally, evaluating which of two paths each patents might follow:

- Patents for internal use to support increased competitive positioning for Dow, enhance core competitive advantage and strengthen its available technology
- Patents for use by third parties in noncompetitive opportunities.²⁵

For third-party commercialization, a cross-functional team evaluates licensing opportunities for the unused patents. As a result, fees and royalties increased from US\$25 million in 1994 to more than US\$125 million in 2005.²⁶ By integrating IP across the corporation, Dow has enabled not only its own innovative processes, but also those of its partners and increased revenues as a result.



DISRUPTIVE BY NATURE

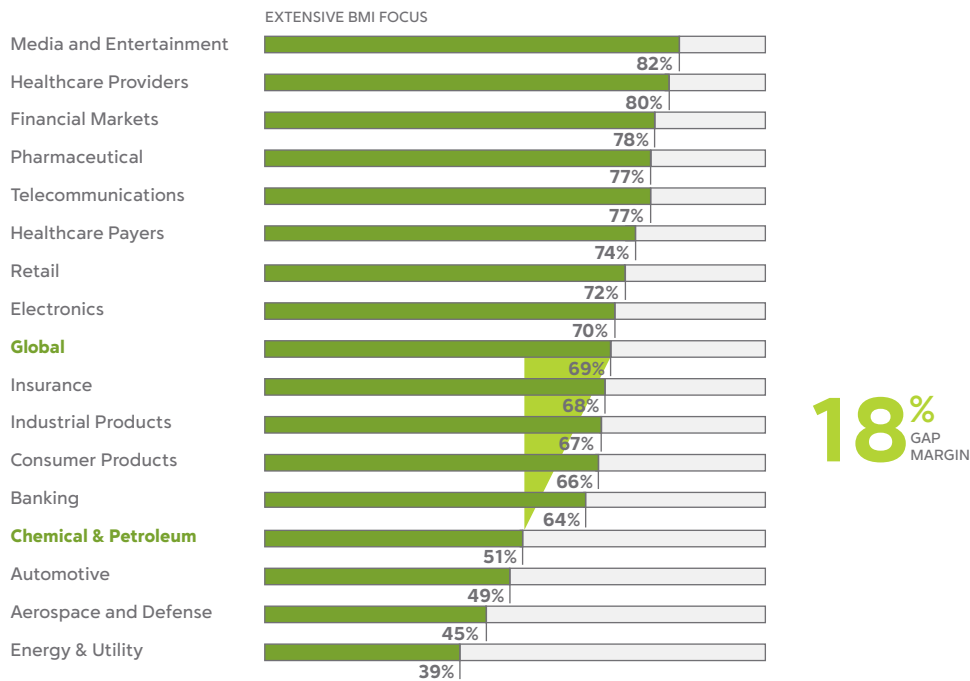
Despite big developments in new energy and other products, only half of C&P CEOs are implementing extensive business model innovations. Are they too entrenched in current models? Will the next major energy innovation come from outside their current industries?

While 69 percent of CEOs across all industries are pursuing extensive business model innovation, only 51 percent of C&P CEOs are doing so. In fact, C&P is one of the least active industries in terms of business model innovation – at the back of the pack with other capital-intensive sectors such as utilities and automotive (see Figure 5). Among those who are making business model adjustments, half chose Enterprise Model Innovation as top priority versus 39 percent of CEOs across all industries. To date, the primary innovation approach has been traditional, supporting the CEOs objectives to achieve its customer goals of new markets, new brands and optimization of operational resources.

The area attracting the least focus among C&P CEOs is industry model innovation. This is not particularly surprising since it the most difficult to achieve. Only 19 percent of C&P CEOs are contemplating innovations that redefine their existing industry, cross over into another industry or establish an entirely new industry. Of these CEOs, the focus is primarily to define new industries, building on the trend to pursue the rising prosperity of customers and taking advantage of new energy trends.

FIGURE 5 C&P COMPANIES LAG OTHER INDUSTRIES IN BUSINESS MODEL INNOVATION

Asset-intensive companies, like C&P companies, are less likely to undergo business model innovation (BMI).



C&P COMPANIES AS INNOVATORS

C&P CEOs may underestimate the degree of their own business model innovation. Chemical companies are developing new technologies every day and creating more environmentally friendly uses of those technologies. Petroleum companies are beginning to form partnerships with many different companies – from customers with high energy usage to producers of alternative sources of energy – to pursue new energy opportunities.

By continuing to develop alliances and partnerships, many beyond the traditional boundaries of the industry, C&P companies will broaden their base of expertise and ideas. Within the industry, complex operation environments and the constant quest to find feedstock will continue to create the need for unique multipartner agreements. C&P companies will continue to invest in entrepreneurial innovators and ideas outside their industries. And increasingly sophisticated consumers will compel the C&P ecosystem to respond to their needs and demands.

In addition to new growth strategies and a more complex workforce, market dynamics will prompt C&P companies to redefine the core of their businesses. As new business models emerge among the various industries that collaborate with C&P companies, new definitions of what is core will evolve.

The need to reduce reliance on natural resources, in particular, drives greater collaboration with other industries. For example, Ford, BP, and the City of Taylor, Michigan, began in 2006 to open hydrogen stations to service Ford Focus fuel cells being used as official city vehicles. Four Taylor vehicles are part of a Ford Focus fuel cell demonstration fleet in the United States, Canada and Germany. Creating the infrastructure to support a new method of transportation and a new type of fuel is a prime example of the degree of collaboration needed from disparate organizations to accomplish significant changes.²⁷

Intersections between industries can be the starting point for new companies and partnerships to create new services and solutions. Externally, C&P companies need to monitor other industries for concepts and business models that could transform their markets. Internally, they need to create space for entrepreneurs and innovative business models to grow and prosper while continuing to drive today's performance.

Case study

APACHE: DOING WHAT IT DOES BEST

Apache Corporation is an oil and gas independent with the strategy “Grow, succeed, innovate – and do it faster than the guys down the street.”²⁸ The company currently operates in the United States, Canada, Egypt, the North Sea, Australia and Argentina.²⁹

In the early 1980s, Apache began acquiring non-operated interests in the Gulf of Mexico.³⁰ At the time, Gulf of Mexico drilling was considered relatively mature, with rapid decline rates and exposure to weather interruptions. And most companies were deciding to reduce their exposure in the area. Apache utilized its experienced staff, effective management and incentives to become experts at low-cost operations. From Shell, for example, Apache acquired non-operated interest in over 70 federal leases on the continental shelf. By 1995, the offshore region had become Apache’s most productive and profitable area and generated the cash to fund its future acquisitions and investments.³¹

Its low-cost business model positioned the company to embark on an acquisition strategy. The company grew across multiple regions with five acquisitions from 1999 to 2004, including more in the Gulf area, the North Sea and Egypt.³² Apache was able to profit from these acquisitions, thanks to its repeatable practices and flexibility in areas others thought were not economically feasible.



GENUINE, NOT JUST GENEROUS

Socially minded consumers, workers, partners and investors are now watching almost every move companies make. C&P CEOs have responded with environmental, community and workforce programs. Are their existing approaches enough to manage all aspects of corporate social responsibility?

It's no surprise that C&P CEOs are more concerned than CEOs in other industries about corporate social responsibility (CSR) issues. And the degree of difference is dramatic – 36 percent of C&P CEOs see environmental issues as a major change driver versus 18 percent across the full sample.

What's even more intriguing is that a much larger segment of C&P CEOs – 90 percent as compared to the 69 percent cross-industry average – believe customers' rising corporate social responsibility expectations will have a positive impact on their businesses. As a result, C&P CEOs are planning a 32 percent increase in investment

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“Demanding customers and rising expectations of corporate social responsibility provide opportunities for us as we deliver better services and maintain higher standards. This enables us to secure a premium.”

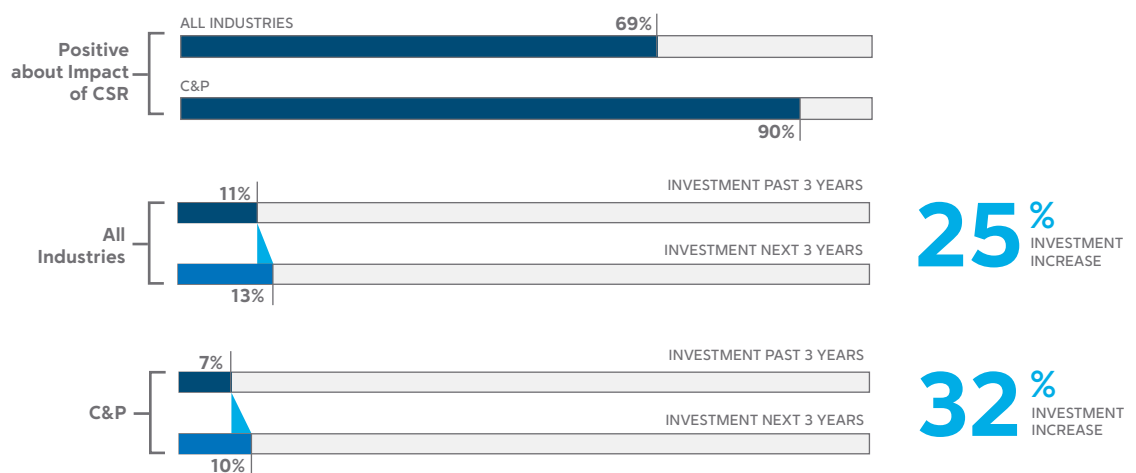
CEO, Asian petrochemical company
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over the next three years to capitalize on this opportunity (see Figure 6). Across industries, CSR-focused CEOs are implementing environmental initiatives, new products and services. In contrast, C&P executives are primarily investing in environmental initiatives and new markets – consistent with their optimism about rising prosperity within developing countries.

As important as environmental issues are, green cannot be the only color in C&P CEOs’ palettes. Companies must also pay close attention to socioeconomic factors especially as they expand into new areas of the globe. An emerging generation of socially minded consumers, workers and investors has growing expectations for ethical corporate behavior and increased transparency across a broad spectrum of issues.

FIGURE 6 C&P COMPANIES ARE ENTHUSIASTIC ABOUT CSR

C&P CEOs view rising CSR expectations more positively than other industries and are increasing their investment in the trend.



In a recent IBM Institute for Business Value study on C&P risk management, executives rated their companies highly in Health, Safety, and Environmental (HSE) expertise, with the largest gap centering on their ability to drive continuous improvement in this area. Most companies initially focus on regulatory compliance, the price of entry for any industry. But as they become adept at standardizing practices, they can begin to simplify operations globally. This, in turn, will allow the integration of CSR into performance metrics that drive daily decision making and actions and ultimately into forward-looking strategic decisions. In this study, companies with a broader view tended to be better positioned financially and able to improve reliability, resilience and predictability.³³

C&P ENTERPRISES AS CSR LEADERS

Through exploration of alternative energy sources and ongoing product innovation, C&P companies will continue to play a primary role in expanding energy beyond fossil fuels. And sustainability will drive investments, product categories, and performance and convenience packaging decisions well into the next decades. Corporate social responsibility will take on an as yet unforeseen importance and will impact organizational strategy in a multitude of ways.

Continually monitoring customers' and consumers' CSR expectations – and even involving them in solutions – will create the innovative environment to adapt as these expectations change. To ensure that actions taken throughout the enterprise – and the extended value chain – are consistent with CSR values and HSE policies requires the integration of CSR into the day-to-day operations of the company. By integrating social responsibility metrics and strategies into an overall business strategy, C&P companies can respond to growing consumer, safety, community and regulatory concerns.

Case study

MAKING THE LEAP FROM OIL TO WATER

A recent United Nations report estimates that over a billion people in Asia alone will be “water stressed” by 2050.³⁴ Recently, more and more oil companies are looking into the business of water. The core competencies of the petroleum industry make these companies likely candidates to become not only the world’s oil suppliers but also the world’s water suppliers.

The oil industry has an opportunity to apply its same locating, drilling and pipeline capabilities to extract water. Many wells in Texas, for example, are actually producing more water than oil as both are pumped out together, then separated. Industry estimates suggest that for every barrel of oil extracted, 50 to 100 barrels of water are captured.³⁵

EarthWater Global is an example of a company utilizing seismic technologies to locate and develop sustainable groundwater resources. And other companies are entering or already in the business of water. T. Boone Pickens is purchasing land in Texas on the Ogallala Aquifer to provide water to Dallas; Dow Water Solutions provides water and non-water treatment and separations solutions; and Halliburton drills and maintains wells for state-owned oil and gas companies.³⁶

BUILDING YOUR ENTERPRISE OF THE FUTURE

C&P CEOs fundamentally agree with the CEOs in our overall survey sample about the characteristics that will distinguish successful businesses in the future. Their responses suggest that the Enterprise of the Future – as we have called it – will be hungry for change, innovative beyond customer imagination, globally integrated, disruptive by nature and genuine, not just generous.

However, the challenges C&P CEOs face are different from those of other CEOs in some respects. They anticipate significant change, but the asset-intensive nature of their industries makes business model innovation more difficult. They are more global, but the emphasis on entering new markets, globalizing brands, and optimizing resources suggests they are not as integrated as they need to be. While expanding more rapidly into developing countries, they are less likely to take advantage of opportunities related to today's increasingly informed and collaborative consumer. And they're under tremendous pressure to respond to the trend toward greener technologies.

The critical question is: are C&P companies prepared for the future? Do they have the adaptable processes and infrastructure they need to manage more change at a faster pace, and capitalize on the new

opportunities that globalization, increasing affluence and greater connectivity are creating? The partners they need to innovate? The flexibility they need to pursue business model change? Integrated resources to seize opportunities wherever they appear in a global marketplace?

We look forward to learning more about where you think the C&P industry is heading – and working with you, as you build your Enterprise of the Future.

For additional information about the Global CEO Study, visit:

ibm.com/enterpriseofthefuture

To discuss these industry implications further, we invite you to e-mail one of the following contacts:

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NOTES AND SOURCES

- ¹ For readability, we have referred to all respondents as “CEOs” throughout the remainder of our report.
- ² For companies with publicly available financial information, we compared revenue and profit track records with the averages for those in the same industry across our sample. Companies that performed above average on a particular financial benchmark were tagged as **outperformers**, and those below the average were labeled as **underperformers**. Throughout our analyses, we looked for insights based on these top- and bottom-half groupings.
- ³ “Pickens Plan: The Plan.” One-year view of crude oil prices, as of August 1, 2008. <http://www.pickensplan.com/theplan>
- ⁴ Milmo, Sean. “Changing places.” *Chemistry and Industry*. May 7, 2007, Issue No 9, p. 12.
- ⁵ “Access Holdings: LyondellBassell Industries.” <http://www.accessindustries.com/index.php?p=investments>
- ⁶ “Our company.” <http://www.tnk-bp.com/company/>

- ⁷ "A new global leader." http://www.lyondellbasell.com/lyondellbasell_home.htm
- ⁸ "About the company." <http://www.bogatyr.kz/page.php?lang=2>
- ⁹ "Access Holdings: Media and telecommunications." <http://www.access-industries.com/index.php?p=investments>
- ¹⁰ "Access Holdings: Real Estate." <http://www.accessindustries.com/index.php?p=investments>
- ¹¹ In our survey, the term "total investments" was defined as: all asset investments plus investment in research and development, marketing and sales.
- ¹² "Ethanol and Beyond." *The Wall Street Journal*. March 24, 2008.
- ¹³ IBM analysis of company annual reports.
- ¹⁴ "Strategy: Our four guidelines." <http://www.corporate.basf.com/en/investor/strategie/?id=PKgOBCmdlbcplz>
- ¹⁵ "BASF and Ford: Cooperation yields brilliant results." http://www.corporate.basf.com/en/investor/strategie/kunden/basf_ford.htm?id=SilkOCK0Kbcp3d_
- ¹⁶ "adidas and Renault." http://www.corporate.basf.com/en/investor/strategie/kunden/adidas.htm?id=V00-SilkOCK0Kbcp3d_
- ¹⁷ Ibid.
- ¹⁸ Extensive Globalizers indicated the most extensive and global business design changes across all seven aspects discussed – deeply changing mix of assets and capabilities, partnering extensively, entering new markets, globalizing brands/products, optimizing operations globally, growing through mergers/acquisitions, driving multiple cultures. Localizers were at the other extreme – maintain current mix of capabilities and assets, do everything in house, defend core markets, localize brands/products, optimize operations locally, grow organically and strive for single culture. Blended thinkers ranked everything except driving multiple cultures as equally important. Globalizers responded like Extensive Globalizers except new assets and skills were as important as current ones, and they were striving for a single culture.

- ¹⁹ Lesser, Eric. "Unlocking the DNA of the Adaptable Workforce." IBM Institute for Business Value. November 2007.
- ²⁰ Gonzalez, Angel. "Experienced Oil And Gas Hands Become A Scarce Commodity." *Comtex News Network*. February 14, 2006.
- ²¹ Ibid.
- ²² Koppinger, Penny. "Where There's Smoke." IBM Institute for Business Value. June 2008.
- ²³ "This is Dow." <http://www.dow.com/about/aboutdow/about.htm>
- ²⁴ Manasco, Adam. "DOW CHEMICAL CAPITALIZES ON INTELLECTUAL ASSETS." *KM Talk*. April 8, 2005. <http://www.kmtalk.net/article.php?story=20050412033035404>
- ²⁵ Ibid.
- ²⁶ Ibid.
- ²⁷ "FORD AND BP OPEN FIRST HYDROGEN STATION IN TAYLOR." Ford press release. October 17, 2006. http://media.ford.com/newsroom/release_display.cfm?release=24585
- ²⁸ "Mission & Values." http://www.apachecorp.com/About_Us/Mission_Values/
- ²⁹ "About us." http://www.apachecorp.com/About_Us/
- ³⁰ "Defining Moments: 1981 Shell Joint Venture." Apache Corporation. October 15, 2004. http://www.apachecorp.com/explore/explore_features/browse_archives/View_Article/?docdoc=372
- ³¹ "Apache's Gulf of Mexico Strategy." Apache Corporation First Quarter 2006 Update. http://www.apachecorp.com/explore/explore_features/browse_archives/View_Article/?docdoc=255
- ³² Ibid.

- ³³ Koppinger, Penny. "Where There's Smoke." IBM Institute for Business Value. June 2008.
- ³⁴ "Millions at Risk of Hunger and Water Stress in Asia Unless Global Greenhouse Emissions Cut." United Nations Environmental Programme press release. April 10, 2007. <http://www.unep.org/Documents.Multilingual/Default.asp?ArticleID=5551&DocumentID=504&l=en>
- ³⁵ Gronewold, Nathaniel. "Oil companies see opportunity in another precious commodity." Greenwire. July 28, 2008. <http://www.wbcsd.org/Plugins/DocSearch/details.asp?ObjectId=MzA4NjE>
- ³⁶ Ibid.



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