

Differentiation: Driving
High Performance in the
Global Chemical Industry

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A cyclical story

After a prolonged down cycle, the global chemical industry is enjoying something of a revival. An improving world economy, especially the strength of demand from China, has helped restore the industry's pricing power and although continued volatility and the soaring cost of energy remain serious challenges, the cyclical upswing is likely to endure for another year or two.

This is no time for complacency, however. China remains the key to the durability of the current cycle. The industry's dependency on Chinese demand makes it highly vulnerable to the health of the Asian giant's economy. The Chinese, moreover, boast a burgeoning chemical industry. When new Chinese capacity comes on stream in 2007/2008, it will pose a significant challenge to the rest of the petrochemicals segment of the industry.

Now is the time to prepare for these developments.



The challenge of maturity

The chemical industry's most serious long-term challenge is one familiar to many—maturity. Accenture defines maturity as a state in which volume growth is equal to or less than GDP growth and in which capacity is highly concentrated in the hands of a few competitors.

To be sure, the heterogeneity of the chemical industry complicates the picture. Chemicals' many sub-sectors are maturing at different rates and a few are even continuing to expand. But the petrochemicals sub-sector is probably a bellwether for the industry as a whole and petrochemicals, having achieved maturity already in both the United States and Europe, are expected to mature globally by 2012.

Except in Asia, a whole raft of other sub-sectors is maturing rapidly as well. At the same time, product commoditization is eroding profitability right across the industry. Consolidation among customers, particularly in the retail sector, whose buying power is especially strong, has intensified the squeeze on margins. And external factors, notably the rising cost of energy, are taking a heavy toll.

Accenture's extensive research into the response to maturity in other industries suggests a consolidation rate, based on number of firms, of about 20 percent per decade. Chemicals are no exception. The rate of consolidation varies across sub-sectors, but the industry overall has accelerated the pace of mergers and acquisitions since 1997—yet, with negligible effect.

There are probably as many chemical companies in the world today as there were 10 years ago—more, if Chinese companies are included. The number of players still in the game only serves to intensify price pressures.

Bucking the trend

Achieving high performance in this environment is plainly tough, but it's not impossible.

High-performance businesses consistently and enduringly outperform their peers, across business and economic cycles and often across generations of leadership. Accenture measures high performance according to a set of five metrics—longevity

(total return to shareholders over three, five and seven years), profitability and growth (capital spread performance and revenue growth), positioning for the future (future growth value) and consistency or predictability of performance. (Figure 1)

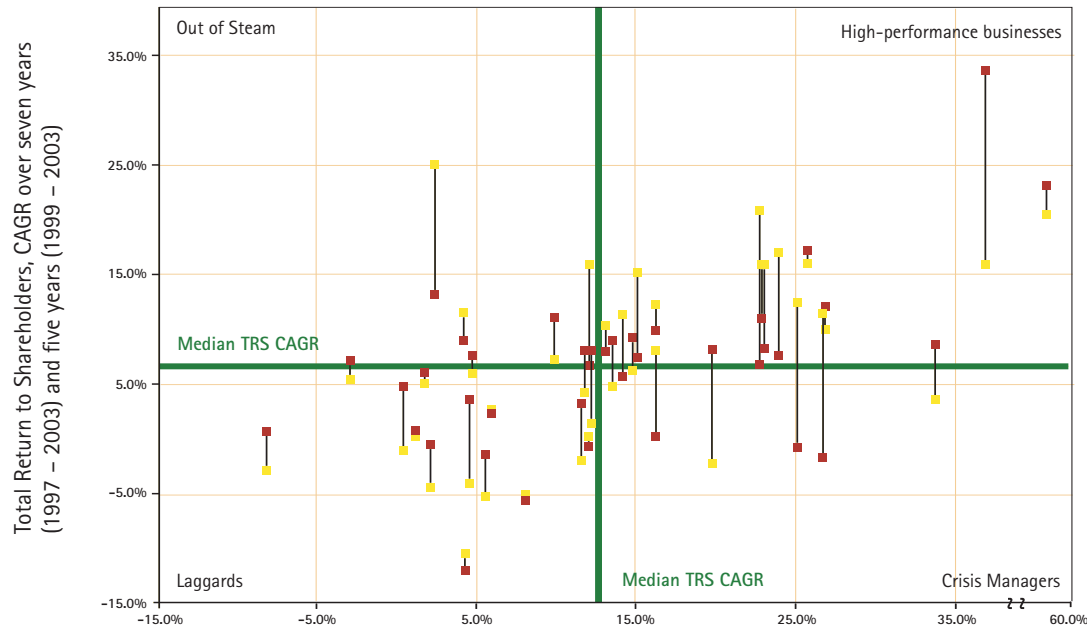
Our research in the chemical sector has identified 12 high-performance companies—businesses that have managed, against the odds, to consistently deliver superior returns to their shareholders over many years and that are likely to continue to do so in the future (see below).

High-Performance Chemical Companies*

- 3M
- Air Liquide
- Air Products
- Albemarle
- Cabot
- Dow
- Ecolab
- Engelhard
- Formosa (chem-fiber)
- Praxair
- Sigma Aldrich
- Valspar

* based on May, 2003 data

Figure 1: High-performance businesses have outperformed the industry median over the last seven, five and three year time frames.



Total Return to Shareholders CAGR over three years (2001 - 2003)

- 5-year versus 3-year TRS
- 7-year versus 3-year TRS

Note: Givaudan uses a four and three year TRS.
Lonza five-year TRS over the last 59 months from 12/99 to 11/04

Source: Compustat, Accenture Analysis

Differentiation—the key to high performance

What distinguishes the chemical industry's high performers more than any other single factor is differentiation—of product, application, service and price, as well as differentiation in terms of the kinds of collaborative partnerships and alliances these companies strike with both customers and providers.

High-performance chemical companies demonstrate differentiation in diverse ways and by way of different strategies. Strikingly, defensive strategies rarely achieve competitive advantage. High-performance companies always adopt proactive, offensive strategies. They vigorously leverage their strengths in terms of scale, customer relationships, service or innovation to create a perception of exceptional value among their customers—and they deliver on that value.

Some of these companies are cost leaders. They differentiate by leveraging their scale to deliver reliably, consistently and globally at low cost. Others adopt a value-focused strategy. They distinguish themselves by developing highly innovative solutions to specific customer needs. Still others differentiate by focusing on specific customer niches, catering to demands for some form of specialized expertise or customized product. However they go about it, all high-performance chemical companies clearly are successfully differentiated. What's more, the secrets of their success are difficult to replicate—difficult, but not impossible.

Each of these differentiation strategies (Figure 2) carries significant risk. Cost leaders are always vulnerable to lower-cost substitutes. And those who follow a value-focused or niche-oriented strategy must face the fact that imitation steadily obscures the differences—more accurately, the customer's perception of those differences—among products and services. As they become more sophisticated, customers' need for differentiation diminishes—and competitors know it. For mature industries like chemicals,

the problem is particularly acute. Those that have continued to successfully differentiate know that buyer selection—picking the right customers by developing customer insight, positioning the brand to focus on their needs and constantly and accurately measuring their responses—is critical.

These companies focus on customers whose needs suit their capabilities and can be served profitably. They work to retain these customers by building up their switching costs, broadening their product choice and continually redefining the way they think about the company's products and services.

Accenture research confirms the significance of differentiation to high performance across all the industries we studied. It is central to what we call competitive essence, a quality unique to all high-performance companies and which describes the special combination of differentiated attributes that enable these companies to out-execute their rivals. Many companies compete on the basis of a single point of differentiation, but only high-performance companies differentiate at multiple levels to achieve competitive essence.

A choice of business model

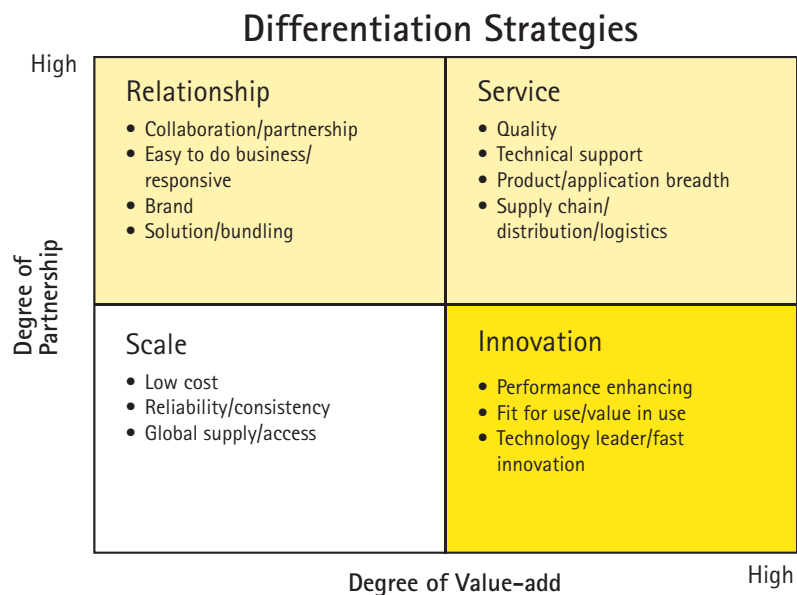
High-performance chemical companies employ different business models to achieve differentiation. Our research has identified three distinct types. Some high-performance chemical companies are **scale-driven**, growing through geographic expansion and market consolidation; others are more knowledge-based **solution providers**, focusing on specific services that are uniquely tailored to selected customers; still others—indeed, most—are what we call **differentiated operators**.

Differentiated operators set themselves apart through product innovation or customer relationship management, or through some special services that combine an exceptionally acute understanding of their customers' needs with highly focused product innovation.

We were intrigued to learn that several of the high-performance companies employing this business model are industrial gas firms, a sub-sector that predominates among the high-performance businesses we identified (see page 5).

Whichever business model is employed, high performance in all cases depends on a careful balance and alignment of three basic 'building blocks'.

Figure 2: Four key strategies for differentiation based upon the degree of customer partnership and value-add



Identifying the high performers

Our investigations into how well the chemical sector serves its shareholders began some years ago. Designed to help chemical executives more fully understand how to achieve high performance, they have become a model for Accenture investigations into this coveted status in other industries.

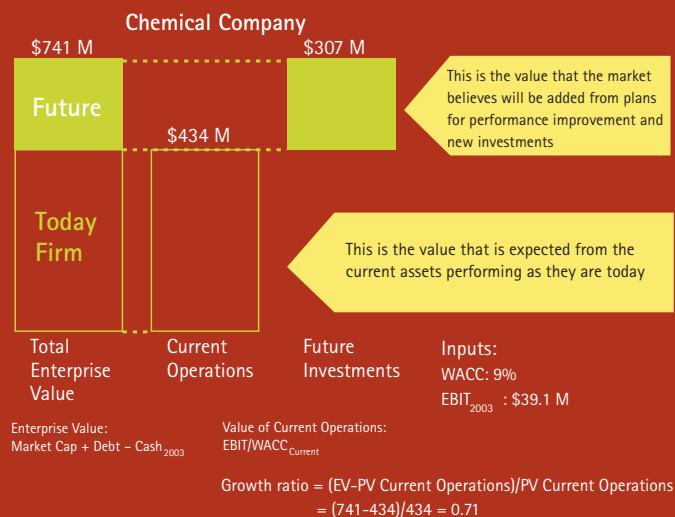
We looked initially at the performance of some 105 chemical companies worldwide—essentially, the total universe of companies with revenues of more than \$1 billion—over a 15-year period, from 1985 to 2000.

In the first phase of the analysis, we looked at performance longevity and positioning for the future. We examined both historical returns—total return to shareholders over three separate five-year periods—and future growth prospects. We derived the latter by first calculating a growth ratio (Figure 3) of current earnings to enterprise value for the last two years of our analysis time frame. Future growth prospects were estimated by comparing the enterprise value (market cap plus long-term debt minus cash) of the company with the present value of the current earnings stream.

Thirty companies emerged from that process as value growth leaders, at which point we applied some of the Accenture core metrics for assessing performance longevity. We calculated the total return to shareholders, on a compound annual growth

basis, over three, five and seven years, as well as profitability and growth (capital spread performance and revenue growth), positioning for the future (future growth value) and consistency or predictability of performance. Finally, for the 30 value growth leaders, we identified 12 companies whose performance exceeded the mean.

Figure 3: Future Growth Value – Future Firm vs. Firm Today



Managing multiple business models: the industrial gas companies

As much of the chemical industry struggles with overcapacity, skyrocketing raw materials costs and slumping prices, industrial gas companies have stood out from the crowd. Over the last five years, they have outperformed not only many other types of chemical companies, but also the S&P 500.

Their recent prosperity has been driven by solid growth among their customers—principally, healthcare and electronics—as well as by the development of new markets for their products, especially in Asia. They have also benefited from the development of the hydrogen economy as refining customers have steadily invested in new processes to meet the clean-fuels requirements of the U.S. Environmental Protection Agency.

But the high-performance industrial gas companies also exhibit some rare qualities—not least, the capacity to manage multiple business models within a common culture in response to their customers' diverse needs. The bulk and tonnage business is a good example of scale, with strategically placed fill plants and good distribution networks. Healthcare requires solution providers, whether as providers of home healthcare solutions or simply as distributors of gases and equipment to the home

healthcare network. And electronics needs differentiated operators, combining gas delivery with engineering and product extensions or electronic chemicals.

Managing these multiple models demands exceptional capabilities in terms of performance culture, operational efficiency and customer orientation. High-performance industrial gas companies plainly have what it takes. Their leaders clearly understand the complexity of running scale-based, cost-oriented businesses in parallel with differentiated businesses that require high service, strong customer relationships and significant investments in innovation. They can also effectively communicate the synergies involved. Their processes and systems, moreover, are flexible enough to process transactions efficiently while providing insight on customers, markets and business performance, as well as facilitating collaboration with key customers.

Maintaining high performance in this sub-sector will be no easier than in any other. But by continuing to differentiate their service offerings and nurturing strong customer relationships, these companies are well placed to manage the challenge of maturing markets. What's more, their mastery of the three building blocks of high performance and especially the distinctive capabilities that create and sustain differentiation should continue to deliver the superior execution that has distinguished them to date.

Mastery of the building blocks

The building blocks, which are common to all the industries Accenture investigated, are:

- Market focus and positioning;
- A set of distinctive capabilities that create and sustain meaningful differentiation;
- A performance anatomy that consistently enables the business to out-execute the competition.

The way in which they manipulate and continually renew the building blocks is what sets high-performance businesses apart from their competitors. (Figure 4)

In the chemical industry, all high-performance businesses have demonstrated superior capabilities around market focus and positioning and performance anatomy, generally at the corporate level, while the objectives and focus of the distinctive capabilities vary across business models (see pages 7-8).

Market focus and positioning

High-performance chemical companies understand the dynamics of their industries better than their peers. They use market focus and positioning to maximize their growth opportunities and gain structural economic advantage. They choose one or two distinct and sharply focused business models and then actively manage their portfolios, restructuring if necessary to achieve the necessary focus.

Confronted with an urgent need to boost the operational efficiency of its supply chain, ICI/Uniqema, for example, partnered with Accenture to completely rethink its business model. Moving to become a high-performance differentiated operator, the company now is developing a culture of continuous improvement.

High-performance businesses demonstrate an exceptional ability to manage the future and operate across multiple time horizons. By accurately assessing the potential of different business activities, rapidly integrating acquisitions and constantly adjusting their

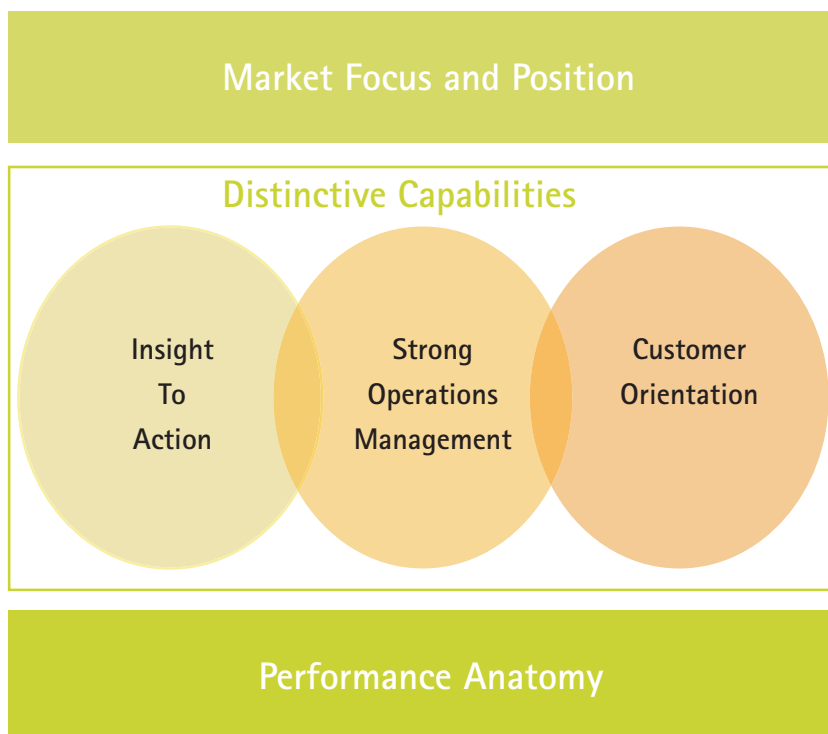
strategy on the basis of fresh insights, they ensure the right business mix. What's more, they always deploy their capital with a view to growth. They not only focus investments on essential core processes; they also make sure that those processes have the best available human capital assigned to them.

Execution is key, but all actions need to be aligned with the corporate growth strategy, which should be determined through a focus on a careful choice of business model.

Scale operators have just that—world-scale manufacturing capabilities with scalable business processes and organizational structures. They also boast access to advantaged raw materials and a leadership position within a relatively focused and narrow product line.

These companies grow through geographic expansion and market consolidation, either by acquisitions to gain reach or through new green-field investments. Sometimes both strategies are pursued. Exxon, for example, expanded via acquisition by acquiring Mobil, and ExxonMobil has

Figure 4: Three building blocks of high performance



moved into growing geographies like the Middle East, Russia, Singapore and, eventually, China. For solution providers, service and knowledge are the key factors. These high-performance companies bring an interrelated set of skills to meet particular needs. They include outstanding intellectual property, world-class relationship management, strong brands, expertise in alliance management and an unparalleled ability to communicate business concepts, value propositions and relevant performance metrics.

Solution providers grow by continually creating innovative new solutions. Witness Avery Dennison, which leveraged the strength of its brand to move downstream from products that use adhesives, like name tags, labels and reinforced file folders, to a broader array of office supplies.

For differentiated operators, the road to growth takes a variety of forms. Valspar, for example, has focused on high-growth customers, like Wal-Mart and Lowe's, efficiently integrating with their supply chains to ensure the fast replenishment

of its generic and branded products. PPG has grown by providing special services. It not only delivers the paint for Ford and GM vehicles, it has taken responsibility for the paint booths within these automakers' assembly plants. The company also provides lifecycle management for the vehicle windshields that it manufactures, insuring the windshields against damage and breakage and swiftly processing claims, as well as rapidly responding to requests from dealers and shops for replacement windshields.

Air Products, meanwhile, an industrial gas company and yet another differentiated operator, has grown by setting up production units at its customers' sites, expanding into the new hydrogen economy and leveraging its oxygen production to provide services and solutions for the US home healthcare market. Yet one of the key insights of our work has been to show that outstanding growth strategies and related portfolio management activities alone won't ensure high performance. They must be balanced and enabled through distinctive capabilities.

Distinctive capabilities

Three, truly distinctive capabilities characterize the business practices of high-performance businesses in the chemical industry. The relative emphasis on each capability varies by business model, but they all fit together to create and sustain meaningful differentiation.

Of the three capabilities, **customer orientation** is paramount. High-performance businesses across all industries demonstrate an extraordinarily deep insight into customers' needs, especially their latent needs. **Insight to action**, or innovation, is the ability to sense changes in the market and work with individual customers to rapidly develop new products and services and to take actions that underpin the other capability essential to success—strong and highly focused **operational management**.

Each of these capabilities is critically important—but it is the way in which high-performance businesses successfully integrate them that really sets these companies apart.

The Dow Chemical Company: a scale-driven operator

Dow is one of the largest chemical companies in the world. It has grown through consolidation to achieve a presence in just about every industry sub-sector, as well as in most regions of the world. Yet this giant has also managed to differentiate through both scale and customer insight.

Dow leverages its standard processes and systems globally to build and maintain a low-cost position and to facilitate the integration of acquisitions. Exceptional portfolio management has improved margin quality and helped the company ride commodity cycles.

In the course of the 1990s, Dow shed divisions like Dow Brands, which was essentially a solutions business, and added more differentiated commodities to its portfolio. At the same time, the company has continued to focus on innovation and customer orientation, using stage-gate processes and advanced technologies to speed the innovation process and more rapidly commercialize new products and services.

Dow focuses on sales and marketing capabilities that enhance the customer experience and better tailor its products and services to meet customer needs. By offering multiple channels

to market, Dow cuts the costs of servicing its overall customer base. Internet-based eEpoxy also allows customers who value lower price and standardized service to order product quickly and with minimal effort.

Dow uses IT exceptionally well as a strategic asset. It has leveraged its IT to gain deeper insight into business performance and trends through the development of a global data base that tells the company which customers are most profitable, which products are moving fastest and where sales are trending in different markets. Dow also forged a first-of-its-kind IT services outsourcing alliance with Accenture back in the mid-1990s that has been instrumental in helping the company reduce overall IT costs by \$100 million.

Dow's performance culture contributes significantly to its high performance. Indeed, its value-based performance management skills are second to none. The company is continuously building capabilities within the organization and offers employees at all levels a robust training program, both in-person and through the Internet.

Ecolab: a solution provider

Founded 80 years ago as a traditional specialty chemical company producing industrial detergents, Ecolab has creatively leveraged its intellectual property and customer relationships to evolve into a provider of custom cleaning programs. The company now meets the total sanitation needs of its customers, designing and managing broad solutions from food safety, through pest management to equipment maintenance.

Active portfolio management isn't Ecolab's only high-performance building block strength. It's also extraordinarily adept at translating insight into action. The company is a leading innovator in terms of both product and equipment Research & Development. It listens carefully to its customers on a 24-hour basis, via both its 9,300-plus global sales force and its MyEcolab.com Internet channel. The company trains 2,700 sales associates annually, as well as providing training along with consultation services to its customers.

Ecolab has based a highly differentiated performance culture on the concept of the "Ecolab Difference"—innovative research, superior solutions, first-class training and unparalleled service. Its organization is flexible, responsive and results-oriented. Leadership encourages appropriate risk taking and learning from mistakes. And a highly decentralized structure allows the company to stay in close touch with customers and market trends, producing an upshot—fast decision-making and superior execution.

Cabot: a differentiated operator

Founded in 1882, Cabot Corporation has a long history of innovation and global growth. Carbon black was the key to the company's success for many years. Cabot is the world market share leader and for 100 years extensions of the basic product and steady expansion into emerging markets fuelled its growth.

More recently, Cabot has leveraged both the strong cash flows and core competencies developed in its carbon black business to fund its growth and drive new product innovation. Time after time, the company has placed successful bets on new businesses and markets, delivering strong growth and superior shareholder value.

Cabot's core competencies are three-fold—making and handling very small particles; modifying the surfaces of those particles to alter functionality; and designing unique composites for specific properties and applications. Thus, having founded and spun off Cabot Microelectronics, the company continues to build out a technology portfolio that includes inkjet colorants, super metals like tantalum, specialty fluids and aerogel/nanogel products. The recent acquisition of a micro-powders business, Cabot Superior Micro Powders (CSMP), opens up new opportunities in electronic materials for flat-screen panels and low-cost, disposable electronics like RFID devices and smart cards.

Cabot is an exemplary differentiated operator, seeking to differentiate and grow by improving the performance of products that consumers use every day. It remains relatively small, avoiding potentially disruptive mega-mergers and choosing instead to use Mergers & Acquisitions selectively to expand its technology capabilities. The company also invests continually in Research & Development to pursue the development of high-value, breakthrough products.

Cabot's robust intellectual property portfolio ranks in the top 10 percent of MIT's patent scorecard (ranked by number of patents that generate revenue). And its network of partnerships to support innovation ranges from customers and universities to other organizations that are developing complementary product technologies. Cabot's performance anatomy is characterized by cooperation, mutual respect among employees and partners and a sense of always being able to do better.

1. Customer orientation

High-performance companies make a clear decision to carefully select their customers on the basis of profitability and growth potential. They create a market within a market by selecting the 'right' customer—and they continually measure customer loyalty and retention rates in order to understand and optimize their customer's lifetime value.

They are also better than their competitors at deepening these customer relationships. They develop strategic customer segmentation by analyzing customer margin, transactional behavior and firmographics such as size, geographic and market presence, growth and business model orientation. They tailor their offerings to fulfill unmet needs and match service quality with customer value perceptions. They also utilize a multi-channel approach, including online sales and service channels.

Customers of The Dow Chemical Company, for example, can use its Internet-based eEpoxy service to order product fast and

efficiently. Dow, meanwhile, cuts the cost of servicing its overall customer base by offering multiple channels to market.

High-performance companies take an integrated view of the customer, using onsite operations or equipment (when appropriate), collaborating with customers in areas like supply chain planning and execution and partnering with them in relationship management to ensure consistency across sales and distribution channels. They also seek to develop external alliances to accomplish the same goals.

Bayer MaterialScience, for instance, partnered with Accenture to boost the efficiency of its North American supply chain. By booking freight more efficiently and improving its inventory targeting and deployment, the company was able to greatly enhance its customer service (see page 10).

The customers of high-performance chemical companies view their brand as a key differentiator. That's because high-

performance businesses define a clear brand promise and effectively manage the brand through a unique branded customer experience delivered across all functional interactions with the customer.

Value-based selling and pricing underpin the high-performance companies' customer relationship management. They utilize sophisticated pricing techniques and supporting software tools to enable better negotiation and contract management. And they understand the value-in-use along the value chain, monitoring competitive pricing and setting price by segment and region to 'like' customers, as well as always balancing the use of their assets with pricing considerations; for example, by managing margin quality based upon customer profitability in periods of good supply, and through reactor margin by customer during tight supply or periods of product allocation.

High-performance chemical companies have developed especially rigorous systems for identifying new customer



segments. Their sales reps are well trained in account management and solution selling. They are constantly exploring the potential for cross-market applications of their products, extending existing products established in one market to a broader range of other markets. And they have a highly developed ability to identify their customers' propensity to switch products. Solution provider Ecolab, for instance, listens to its customers 24/7, via both its 9,300-plus global sales force and its MyEcolab.com Internet channel.

2. Insight to action

High-performance companies display an uncanny ability to recognize shifts in the competitive landscape almost before they happen—and to respond with alacrity. The speed with which they innovate and commercialize new customer ideas hinges on having systems in place that can actually generate insight. These include high-throughput Research & Development (R&D) programs that help maintain a strong pipeline of product innovations. Such companies are also geared to aggressively buy,

develop or partner for R&D specialists, new technology or unique intellectual property. Ecolab, again, is a leading innovator in terms of both product and equipment R&D. High-performance chemical companies translate insight to action by capturing, leveraging and sharing knowledge across businesses and functions and with their business partners. They capitalize on the latest market information and trends by fostering greater market awareness throughout the organization. Crucially, they leverage IT to gain customer and competitive insights—not just for transaction efficiency. Dow, for example, has developed a global database that tells the company which customers are most profitable, which products are moving fastest and where sales are trending in different markets.

At high-performance chemical companies, IT is applied to product offerings through diagnostics, production monitoring, telemetry, and Radio Frequency Identification technologies. A technology enabled supply chain supports tailored customer offerings and promotions by

segment. High-performance businesses also use IT to track R&D performance and the effectiveness of marketing initiatives. Moreover, formalized stage-gate and portfolio management processes identify and progress step-out opportunities. High-performance companies apply formal processes as well to improve and measure their marketing efforts, reducing cycle time in customer research with real-time information insight and incentives to staff for sharing customer intelligence.

These customer and market insights drive their development efforts. High-performance chemical companies regularly perform detailed gap analysis of customer satisfaction rates and act on the results, changing the business if necessary. They also develop market intelligence by closely collaborating with partners, and they act on it by collaborating with customers to develop value-added and customized offerings. Last, but not least, a streamlined organization with coordinated processes right along the value chain underpins this fast and decisive product cycle.

Supply chain restructuring at Bayer

Early in 2004, Bayer MaterialScience AG (BMS) began operations as an independent company within Germany's giant Bayer chemicals group. The newly formed organization, a plastics, adhesives and polyurethanes specialist, confronted many challenges – including how to simplify a complex North American distribution network, which was the result of combining four distinct businesses.

The complexity of combining these four businesses and their four distinct supply chains resulted in inefficiencies and an increased cost-to-serve for BMS. The complexity also made it more difficult to support the new service priorities of the company's North American supply chain operations.

Working with Accenture, BMS's NAFTA region launched the AlphaSCORE strategic initiative – the Supply Chain Optimization and Reduction of Expenses program. Two simultaneous project phases were defined – diagnostics and realization – and a value-based contract was structured to guarantee positive cash flow for the company and directly link Accenture's fees to the delivery of results.

In the diagnostic phase, a combined team of Accenture/BMS industry and supply chain specialists analyzed operational data for nearly a dozen supply chain areas. They also developed business cases, identified stakeholders, created implementation plans, obtained executive approvals and circulated organization-wide communications. In addition, the team orchestrated a much-needed 'partnering relationship' with marketing and manufacturing.

The executive sponsors from the marketing/sales and supply chain organizations combined forces in an effort to leverage the respective efforts. A steering committee was formed to take an active role in decision making to maintain project momentum. The rationale was to use existing marketing programs focused on improving customer service to define 'what' the new supply chain structure must accomplish. The supply chain organization was tasked with taking the project further and defining exactly 'how' to fulfill the new customer service requirements.

Working daily with the marketing teams, the supply chain organization was able to enhance the services defined for the customers and ensure they were operational. The teams used transactional data to model economic changes and demonstrate customer impact for the proposed process changes. The team met weekly with marketing and manufacturing representatives in a ratification process to validate business rules, revised processes and to get decisions made. As a result of this cross-functional collaboration, the new supply chain plan became more discrete and executable and the business case more compelling.

By May 2004, significant improvement potential had been exposed in virtually every corner of BMS's North American supply chain, from network design through transportation arrangements to outsourcing opportunities. Among other improvements, the company now plans to simplify the distribution network, improve transportation equipment efficiency, enhance customer service by booking freight more efficiently, and increase reliability by improving its inventory targeting and deployment. The combined effect of these measures should deliver significant, meaningful reductions in supply chain spend.

3. Strong operations management

The strength of high-performance companies' operations management in manufacturing, supply chain and the back-office supports the key success factors for the business. Such companies take an end-to-end view of the entire supply chain, from procurement through distribution. They also seek strong back-office operations. These companies clearly articulate key success factors and supporting business rules to align organizational activities and priorities.

High-performance businesses utilize a balanced set of metrics that are scrupulously aligned and monitored across business units and functions. They have world-scale/class assets with access to global markets. They utilize integrated supply/demand planning—integrating and optimizing manufacturing and supply chain in the case of scale operators; producing to customer and market demand in the case of differentiated operators; responding rapidly in the case of solution providers. They also reduce lead times through collaboration and

new planning and monitoring technologies. High-performance businesses are adept at leveraging information to continually improve the quality of operations. Most have a formal system in place for managing and sharing knowledge, and they are exceptionally good at trend monitoring, linking manufacturing control systems with enterprise resource planning and measurement systems and using predictive maintenance techniques.

Operators and hybrid corporations with multiple business models implement shared services organizations to leverage back-office and supply chain related processes and capabilities across multiple business units. In addition to shared services, our research reveals that all high-performance chemical companies have recognized the value of outsourcing non-core activities and practice some form of it (see below). What's more, they will use partnerships and joint ventures to gain a foothold in new markets or to leverage a raw materials advantage.

Outsourcing

All high-performance chemical companies do some form of outsourcing. Many have an external partner manage business processes and the related IT capabilities, a practice known as Business Process Outsourcing; a few have opted to pursue a collaborative strategy for broader step-change, which is known as Business Transformation Outsourcing.

Accenture's ongoing investigations into how the industry views outsourcing delivered fresh insights recently with the publication of a survey of global chemical industry executives, conducted for us by the Economist Intelligence Unit. The results of the survey confirm that chemical industry executives who have opted to outsource are generally satisfied with the results. Nor is it especially surprising to discover that cost saving was their main motivation. Accenture experience shows that savings of over 50 percent are possible—and have been achieved. But survey respondents also cited plenty of other, less obvious benefits as well.

Some 65 percent of respondents were satisfied and 30 percent were very satisfied with their logistics outsourcing arrangements. Interestingly, chemical companies that outsource human resource management were the most satisfied—even though this is the most rarely outsourced process overall. Similarly, a majority of the few who have chosen to outsource their finance and accounting functions were clearly satisfied with the results.

Our research confirms that the industry as a whole has yet to embrace outsourcing on a really significant scale. To some extent, this is due to chemicals' complexity. The sector is characterized

by a high number of individual processes based on different systems—a diversified client base, multiple products and markets, complex business and continuous production processes—that together present a major outsourcing challenge.

Yet this situation also provides an opportunity for chemical companies to maximize the potential of Business Process Outsourcing and elevate their performance in the process. The business and its core operations may be complex, but that doesn't mean that support processes are equally complex. And even if they are, Business Transformation Outsourcing offers a way of cutting through that complexity, simplifying processes and raising performance by reinvesting savings in high value services—all at reduced operating cost.

Although it may seem counterintuitive, many survey respondents said that far from surrendering control by outsourcing they had actually gained powerful new control over business performance. Improved data accuracy and timeliness of reports, more consistency in service delivery and enhanced handling of compliance issues were among the benefits cited.

Collectively, these gains in control enable organizations to achieve high performance on three fronts. They help to deliver current earnings. They lay the groundwork for future growth across business cycles and industry disruptions. And they ensure that the improvements achieved can be sustained—and enhanced—over time.

Integration—the critical mix

High-performance businesses integrate only those operations that will deliver what customers value; they don't try to connect everything. However, it's pretty clear that insight to action depends on the strong execution capabilities of operations management and that neither would amount to much without being market driven through exceptional customer orientation. High-performance businesses excel at integrating these core capabilities.

Thus, customer insight, segmentation, relationship management and value-based selling and pricing—all aspects of customer orientation—underpin the rapid commercialization of ideas that characterizes insight to action. Developing ideas related to market and customer needs to fill a portfolio gap provides the direction for fast innovation. Testing the market response to new products and services and then rapidly rolling out the successful offerings completes the cycle of insight to action.

Merck's Research Planning Model, for example, is a pioneering method that goes beyond traditional accounting and financial measures to judge Research & Development's progress. Because only one in a thousand explored chemicals will become a prescription drug, and because there is no way to tell in advance which one, Merck's CFO Judy Lewent started adapting Monte Carlo analysis in the late 1980s to create the model, which shows how risk is deployed across Merck's entire portfolio of projects.

The process begins with an estimate of the project's scientific viability and then factors in the marketing and manufacturing

variables. It adds economic constraints, such as pricing, inflation and selling costs. Extended over 20 years, senior managers use the model for resource allocation. It exposes the existence of competency gaps and indicates where increasing resources can help and where they would only be wasted.

Merck also tries to get a quantitative handle on intangibles like workforce performance by employing sophisticated workforce analytics applications to mine data and gain insight into business processes and labor conditions. These applications can spot hidden patterns and problems and help an organization make more effective business decisions about programs, policies and pay. Linking customer orientation with strong operations management not only speeds the commercialization of new products and services, it also enables the day-to-day differentiation that can be achieved through the right mix of relationship, channel, product and service tailored to each customer or customer segment. The ability to align and monitor performance metrics and leverage information across both company functions and business partners distinguishes high-performance businesses.

The integration of customer orientation and operational management also involves effective supply and demand planning—both strategically and tactically through the management of assets to capture maximum margin growth, and through clearly defined business rules that communicate to the organization what it can and cannot do for various customers, balancing pricing and profitability with differing service levels.

Performance anatomy

Out-executing the competition requires cultural and organizational characteristics that constitute what Accenture calls performance anatomy. These characteristics are, almost by definition, relatively soft—more a question of mindsets than of measurable capabilities. Yet they run deep within an organization, affecting all its employees and functions. High-performance businesses, moreover, are much better than their peers at transforming these mind-sets into meaningful actions.

Performance anatomy is different from what we generally think of as cultural characteristics in three key ways:

- It represents a unique approach to the core elements common to every business and is characterized by very clear and explicit directions about how these elements should be managed and exactly what competencies must be developed to achieve high performance.
- It provides real insight into the interaction and integration of these core elements, revealing how and why they relate to each other in the way they do.
- CEOs and top management teams make integration of these elements a primary responsibility—powerful testimony to their deep understanding of the competitive essence of the business.

Companies with high-performance anatomies exhibit special strengths in terms of leadership and strategy, people development, technology enablement, performance measurement and innovation.

Leadership and strategy

In an industry where recent CEO turnover has been high, the leadership teams at high-performance chemical companies are remarkably stable; the average length of CEO service at these companies is five years. But these leaders do not act like time-servers when it comes to taking measured risks—on the contrary. They all seem to recognize that continuous renewal is a real and permanent necessity within a high-performance business.

Indeed, our research shows that these top management teams deliberately manage their agendas to ensure the appropriate balance between "today" and "tomorrow", thus preparing for the unexpected. They deliberately set aside at least a third of their time for issues that are strategic at the enterprise level and are intended to build long-term organization capabilities. They also choose strategic initiatives that serve both near- and long-term needs.

High-performance businesses demonstrate the sort of financial flexibility and discipline that resonates well with financial analysts and allows the companies to make counter-cyclical investments. They balance current earnings performance with long-term growth and are characterized by strong free cash flow and solid debt management. According to the 2004 Accenture High Performance Workforce Study, there is a strong correlation between financial performance and the priority that organizations place on human capital development.

The talent multiplier

High-performance businesses are far more likely than their competitors to regularly measure the link between investments in people and business results. In other words, they create a talent multiplier—better results per dollar of investment in their workforces.

In another groundbreaking piece of research, Accenture's Human Capital Development Framework has demonstrated empirically that workplace design strongly correlates with both innovation and financial performance. Not surprisingly, high-performance businesses excel at giving their employees the support they need to be extraordinarily productive (often lowering costs at the same time.)

High-performance businesses HR processes are especially adept at identifying talent, preparing talented individuals for leadership and supporting the optimal performance of the workforce. They're equally good at recognizing under-performing employees and dealing with them decisively.

Technology enablement

High-performance chemical companies view their IT capabilities as a key strategic asset. They utilize IT as a source of operational excellence and competitive advantage, as well as an enabler of innovation and new value creation. Like high-performance businesses in other industries, they systematically leverage their IT systems to gain the sort of insights that support insight to action (see page 14).

Performance measurement

High-performance chemical companies establish disciplined performance measurement for widely recognized intangible assets, like talent, know-how and brand. They also establish a comprehensive and inclusive performance review process that encourages strong accountability for results. And they create and measure intangibles that are specific to the values of their particular organization.

Alcoa, for example, has created a human capital management system that measures more than just financial and accounting resources. Its model embraces four principles:

- The coordination of all sources of HR processes, including performance, recruitment, resource and retention management;
- The inclusion of all sources of human capital, including customers, employees and partners;
- The formation of a human-capital committee to drive change throughout the company; and,
- Implementation, whether for a single department or the entire company, that spans business planning and management life cycles relevant to enterprise and departmental missions.

Alcoa has also developed a specialty in safety. Safety is the first thing discussed at every meeting, everywhere in the company. Managers of facilities that are under-performing in safety can expect a phone call from a member of senior management, as can the managers of facilities where injuries have been reported. Conversely, calls go out to facilities when senior management learns safety has improved. And as Alcoa continues to acquire new companies, a rapid integration process to bring them up to speed on safety remains its top priority.

IT as a strategic asset

Accenture's cross-industry research demonstrates that high-performance businesses regard IT as a source of both operational excellence and competitive advantage. They understand that IT is not just about cost control—it's also the link for capturing the business value of information. Top management recognizes IT's benefit as an enabler of innovation and new value creation and ensures that every employee and function is also imbued with that understanding.

Of course, effective use of IT is also essential to transaction efficiency and speed of decision-making, without which high-performance companies would not be able to out-execute the competition. But these businesses also use IT to gain customer and competitive insights—a characteristic which underpins insight to action, one of the three distinctive capabilities that comprise the building blocks of high performance.

High-performance companies use the insight and knowledge about markets, customers and performance that is generated by IT to deepen their customer relationships, enhance their ability to innovate and generally to optimize their business model.

Accenture's cross-industry research reveals that although high-performance businesses spend less overall than their peers on IT, they are able to free up more funding for discretionary IT

investment. Successful companies minimize their fixed costs through server, storage and data center consolidation and desktop standardization. The savings are re-invested in business insight capabilities, more sophisticated business process automation and enterprise integration technologies—all of which help underpin the building blocks of high performance.

Take portfolio management. High-performance businesses know exactly what they have in terms of IT and where it's running in the business. What's more, they are continually ensuring that these applications continue to add value. As a result, they are better equipped than their competitors to manage their IT applications, replacing and updating only those processes that continue to add business value.

High-performance companies are similarly advantaged when it comes to Customer Relationship Management technologies. Their systems enable collaboration across multiple sites so employees in dispersed geographies can share knowledge and information. For their sales forces, real-time pricing information, made available, for example, on a pocket PC, ensures competitive advantage.

Accenture research concludes that the journey from IT infrastructure to IT innovation for high-performance businesses is at one and the same time managerial, organizational and technical—in short, a holistic exercise.



Innovation

The leaders of high-performance businesses are constantly looking for ways to keep their organizations on their toes. They encourage and reward people to take on three simple but powerful responsibilities: doing the work in a way that accomplishes the specified objective; improving the way the work is done, so as to continuously improve performance; and revolutionizing the work by finding the next wave of products and processes that can change the nature of the business.

What's more, appreciably more employees than at other companies assume these responsibilities. And the doctrine of 'do, improve, revolutionize' is manifested in the top management team's agenda as well.

Johnson & Johnson, for instance, embraces the challenge of continuous renewal for both internal operations and product offerings. Its mind-set means the

company can both respond to and shape fast-moving technological advances in the pharmaceutical industry.

The ongoing expiration of patents on existing drugs motivates the generation of new blockbuster products throughout the industry. At Johnson & Johnson, the need for new products is not immediate. The company is in better shape than its competitors because some patents on its biggest revenue producers stay in effect until 2015. Nevertheless, Johnson & Johnson has been anticipating the need to expand its offerings ahead of schedule, ramping up R&D spending in recent years to boost the output of its laboratories.

Moreover, to augment the internal development of new drugs, existing drugs are being eyed for profitable new uses. As a major producer of medical devices, Johnson & Johnson may have an advantage over its competitors when it comes to re-purposing existing products.

Drug-delivery devices, for example, can be re-fitted for multiple medications and technological updates on promising products supplement the re-purposing process.

The development of an electronic skin patch that uses a weak electrical current to force drugs through the skin, for example, would allow patients on painkillers to dose themselves at the push of a button. Dose levels can be programmed on the unit to avoid overdoses.

Nor is Johnson & Johnson shy about turning outside the company for innovative new products, if they prove lucrative. The company developed internally just two of its current top six best-selling drugs. The other four were co-created with partners, purchased or licensed. The building of collaborative research networks and the licensing of innovation augment the company's well-endowed internal R&D division. The combination promises a healthy product pipeline.

Conclusion

Maneuvering successfully in maturing markets necessitates enhanced sales and marketing capabilities, faster innovation and more flexible supply chains and manufacturing.

Differentiation is the key to high performance in this situation. It can be achieved through any one of a trio of business models, but it must always involve the careful balancing, alignment and renewal of three basic building blocks under the guidance of a strong and stable leadership and within the context of a powerful performance culture.

Differentiated operators, those that stand out because of their product innovation, customer relationship management, or the provision of special services that are combined in a manner that is truly differentiating, are most likely to constitute the bulk of the chemical industry's high performers in the future—if only because there's room for just a handful of scale-driven operators and only a very few companies will be able to evolve into solution providers.

About Accenture

Accenture is a global management consulting, technology services and outsourcing company. Committed to delivering innovation, Accenture collaborates with its clients to help them become high-performance businesses and governments. With deep industry and business process expertise, broad global resources and a proven track record, Accenture can mobilize the right people, skills and technologies to help clients improve their performance. With more than 110,000 people in 48 countries, the company generated net revenues of US\$13.67 billion for the fiscal year ended Aug. 31, 2004. Its home page is www.accenture.com.

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