

# Deloitte Review

ISSUE 14 | 2014

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Complimentary article reprint

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# Cracking the genetic code of high-performing manufacturers

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Nearly 25 years ago, when we began our research into the competitive capabilities of high-performing manufacturing companies, we did not realize the extent to which fierce global competition would become the defining characteristic of our era.<sup>1</sup>





That decade was, in hindsight, the infancy of the rapid globalization of the manufacturing industry. Since then, as competition has increased, so too has our need to evolve and deepen our understanding of what high-performing companies do to improve their global competitiveness. The question of why some manufacturers consistently deliver exceptional performance and move ahead, while others stay put in their positions or even fall behind, requires a new approach to understanding high-performing manufacturers' competitive capabilities and strategies.

What we refer to as the DNA of manufacturing companies is made up of capabilities, and many important questions of competitiveness can be answered by unraveling the DNA of high performers. What allows them to excel time and time again? How are they positioning themselves for the future? How do they differentiate themselves from competitors? And what capabilities are simply table stakes? Through our ongoing study of manufacturers across industry sectors and global regions, and with direct input from CEOs and senior executives of manufacturing companies around the world, we take a closer look at the capabilities that set high-performing manufacturers apart today and likely will for the foreseeable future. This will continue to evolve our collective understanding of what high-performing companies are doing to improve.

### A THREE-TIERED APPROACH TO UNDERSTANDING HIGH-PERFORMING MANUFACTURING FIRMS

**B**roadly speaking, an organization's capabilities reflect its strengths relative to primary competitors in its target markets.<sup>2</sup> These capabilities can be difficult to replicate, and they can give companies an edge in creating innovative products or services to attract new customers and build customer loyalty. We defined 43 such capabilities for our study. For each participating company, we determined its relative competitive position today with respect to each capability. We also determined the importance it believed each capability would have five years from now with respect to its ability to compete with its closest global rivals. (See sidebar, "About the study," for details.) Making sense of the wide array of capabilities employed by manufacturers to drive their competitiveness is especially complex. By separating out the data for high performers and applying analyses in three stages, it was possible not only to make sense of high performers' competitive capabilities, but to describe how they are competing today and where they are likely headed in the future.

#### ***Step 1. Positioning: How competitive are your capabilities today? How important are they for your future?***

Working with the capabilities on our list, executives rated both their company's current competitiveness in each capability relative to its closest global rivals and

## ABOUT THE STUDY

The Global Competitiveness in Manufacturing Initiative has collected insights from hundreds of CEOs and senior manufacturing executives through direct face-to-face interviews as well as through executive workshops around the world over the past five years. As part of this initiative, a global survey was conducted in 2010 and repeated in 2013; together, the two surveys received a total of over 1,100 CEO responses. The study, a collaboration between Deloitte LLP and the US Council on Competitiveness, also involved subject matter specialists at the Indian Institute of Management at Lucknow and Clemson University.

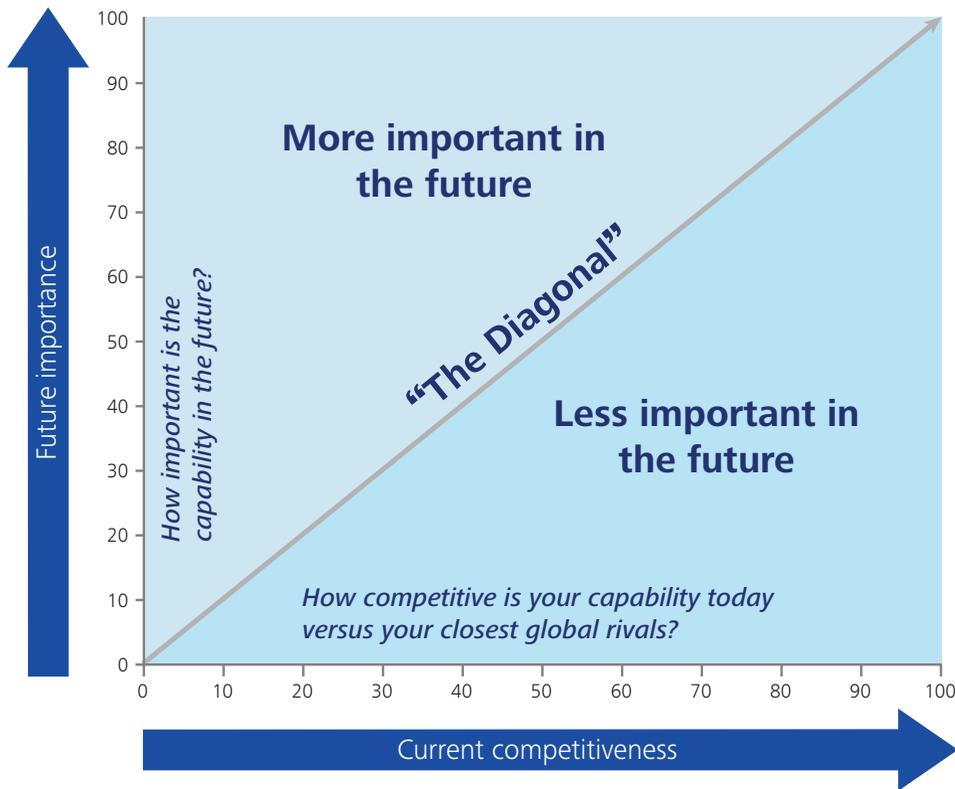
Our comprehensive list of capabilities allowed CEOs to rate their companies' current competitiveness in each capability relative to their closest global rivals, as well as rate how important they thought that particular capability would be to staying competitive in the future. After adjusting for variations in rating among countries (due to culture) and industry subsectors, we normalized the data and calculated current and future index scores for each of the capabilities on a 1–100 scale for both current competitiveness and future importance. At the same time, we separated the respondents' companies into "high performers" and "low performers" (all other companies studied) based on their overall profitability. High performers were identified on the basis of two factors: the company's actual profitability and whether it met or exceeded its profitability goals.

This methodology for selecting high performers showed that, in terms of profitability, 33 percent of the high performers were in the top 10 percent relative to their primary global industry competitors, and *all* of the high performers were in the top half. Among the low performers, only 1 percent were in the top 10 percent, and only 2 percent were in the top half, relative to their primary global industry competitors.

In addition, the return on assets (ROA) for 29 percent of the high performers was in the top 10 percent relative to their primary global industry competitors; 74 percent of the high performers had ROAs in the top half. Among the low performers, only 2 percent had ROAs in the top 10 percent, and only 11 percent had ROAs in the top half, relative to their primary global industry competitors.

each capability's importance to their company's competitiveness in the future. The basic spatial framework shown in figure 1 was developed by plotting normalized data for these two ratings from all of the companies studied, converting these to a 100-point index scale for both current competitiveness (x-axis) and future importance (y-axis). The farther to the right a capability appears on the x-axis, the more competitive leaders feel their companies are in that capability today. The higher a capability appears on the y-axis, the more important that capability is perceived to be for future competitiveness.

Figure 1. Framework for analyzing the DNA of high-performing manufacturers



Graphic: Deloitte University Press | DUPress.com

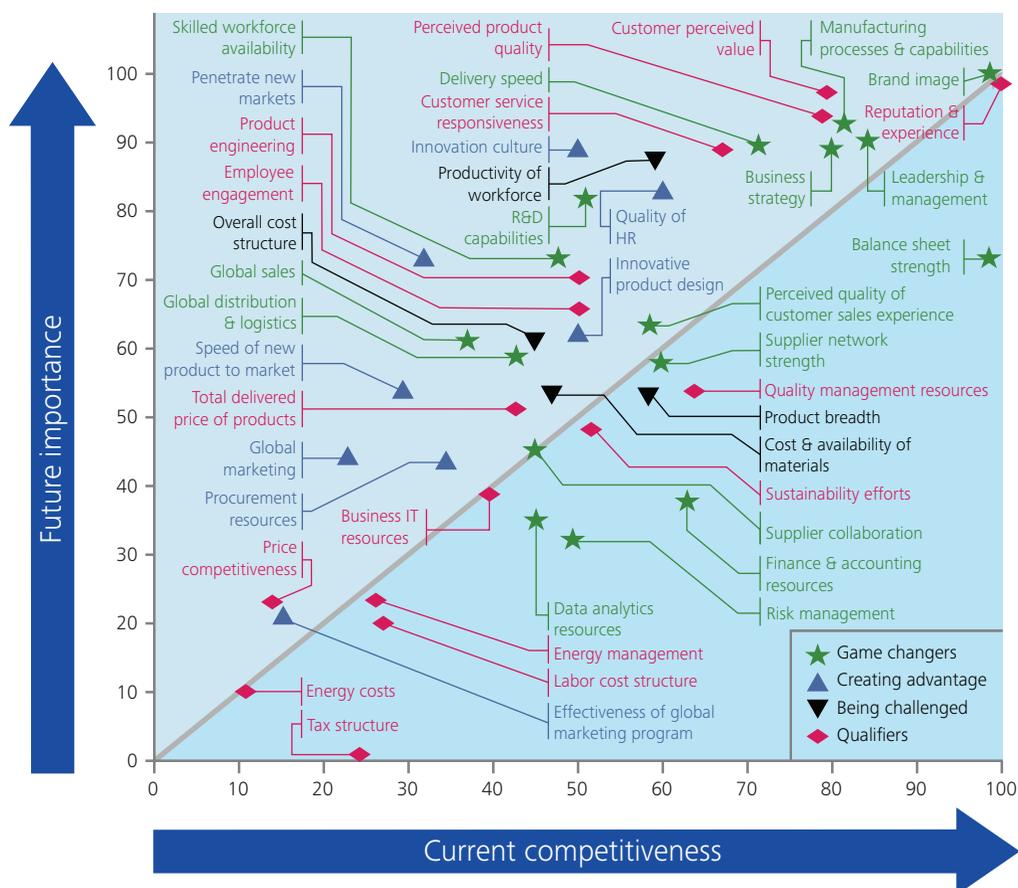
Of equal importance to its position along the x- and y-axes is each capability's position relative to the diagonal line running through the chart. A capability's position relative to the diagonal conveys its perceived future importance relative to the degree of competitiveness companies possess today in that capability. Any capability plotted above the diagonal will be more important in the future relative to companies' current level of competitiveness in that capability; the farther above the diagonal a capability falls, the larger the gap between the two. Similarly, any capability plotted below the diagonal will be less important in the future relative to companies' current level of competitiveness in that capability. Understanding the absolute position of the capabilities studied along the x- and y-axes, as well as their positions with respect to the diagonal, provides important insights into which capabilities high performers perceive as their areas of strength or weakness and which capabilities they believe are more or less important to their future competitiveness relative to their current level of capability.

**Step 2. Differentiation: Are your competitive capabilities or future priorities any different than your competitors'?**

While positioning high performers' capabilities on a scatterplot (figure 2) can yield insight into high performers' strategies, it tells us nothing about whether

**Figure 2. Competitiveness map for high-performing manufacturing organizations**

Average values for high performers: current capabilities (x-axis) and relative importance in the future (y-axis)



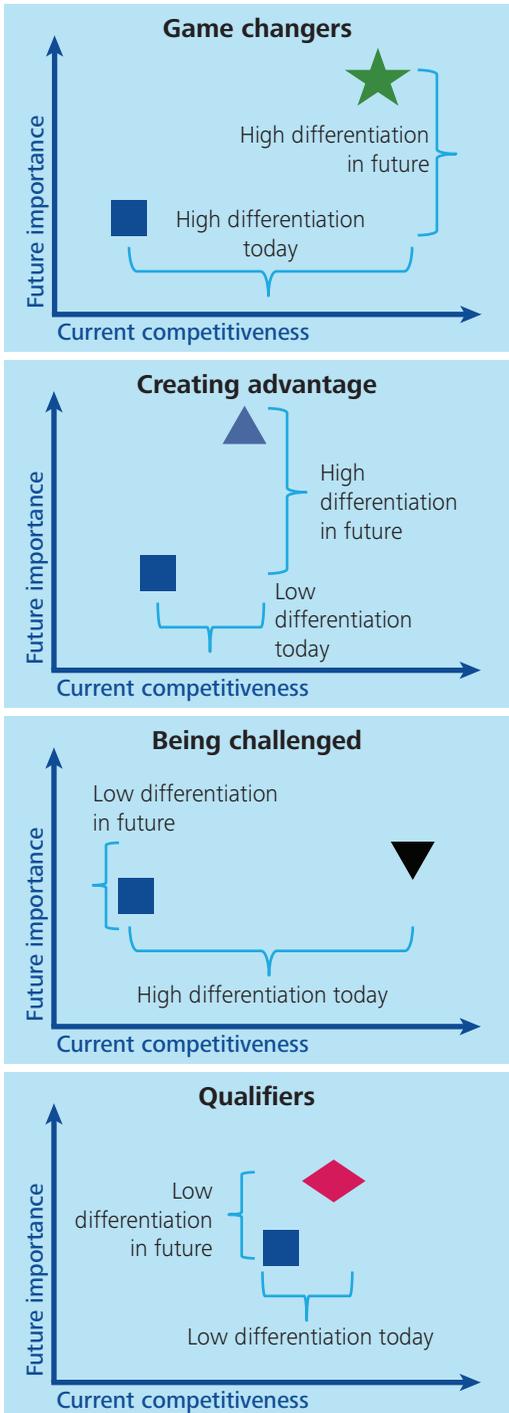
Graphic: Deloitte University Press | DUPress.com

their strengths, or the importance they place on these capabilities in the future, are the same as or different from those of other manufacturers. Are high performers developing unique capabilities, or are they simply matching the capabilities and strategies of their lower-performing counterparts? While directly comparing the high performers’ scatterplot with that of the rest of our sample would allow for the necessary comparison, mapping all the capabilities of both the high and low performers on the same chart would result in a cluttered and confusing graph. We chose instead to highlight the similarities and differences between the high and low performers with regard to each capability. To do this, we compared the two groups on the index scores for each capability’s current competitiveness and future importance. Statistically significant differences emerged that suggest four distinct classes of differentiation (figure 3).<sup>3</sup>

The first two classes of differentiation are at the extremes and likely to attract most attention:

- “Qualifiers” are capabilities for which high performers and the other companies do not significantly differ. Statistically, companies in these two groups

**Figure 3. Differentiation: four classes of competitive capabilities**



■ All other companies

Graphic: Deloitte University Press | DUPress.com

approach qualifier capabilities in the same way. They may or may not view themselves as very competitive today in a particular capability; they may or may not be placing significant importance on the capability for the future. Whenever the capability is on the scatterplot, it is effectively in the same place for both groups. Essentially, qualifiers represent table stakes for competing today and in the future.

- “**Game changers**” are capabilities in which high-performers stand apart from the pack and in which they likely will continue to lead. Along the current competitiveness scale, high performers are significantly better than their counterparts today on game-changing capabilities. And along the future importance scale, high performers place considerably more weight on game changer capabilities than do the other companies in our sample.

The other two classes of differentiation are less extreme but provide important additional insights:

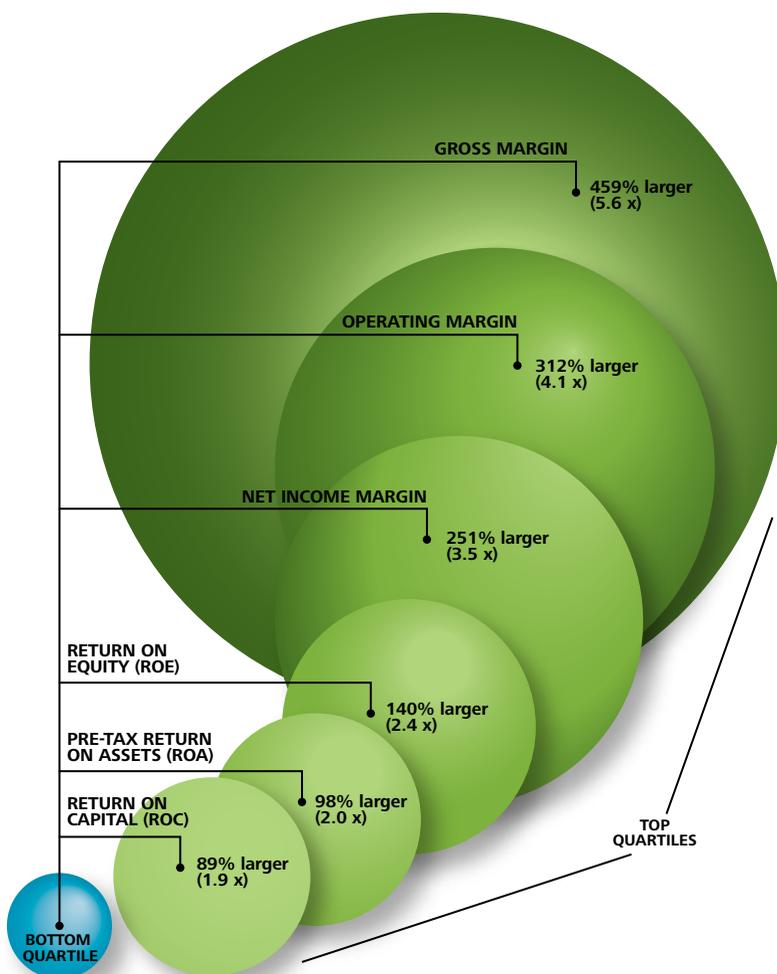
- “**Creating advantage**” capabilities are those in which high performers currently hold no significant advantage over other companies in current performance, but which are viewed as much more important by high performers than by other companies with regard to future competitiveness.

- “**Being challenged**” capabilities are those in which high performers currently hold a strong lead, but where they may lose ground as other manufacturers catch up and close the gap. Low performers place as much or more

## WHY FOCUS ON HIGH PERFORMERS?

The differences between high performers and all other manufacturers in our study are striking. The high performers we studied are operating with such strength that their impact on the future of the manufacturing industry will likely be substantial.

When we divide the top global manufacturing companies (with over \$2 billion in revenues) into quartiles based on their average gross margin for the period 2002–2012, and then compare the bottom quartile to the top in six categories,



Graphic: Deloitte University Press | DUPress.com

emphasis on being challenged capabilities as do the high performers with regard to future competitiveness.

Viewing manufacturers through the lens of the first three types of capabilities—qualifiers, game changers, and creating advantage—reveals a clearer picture of manufacturing competitiveness.

### Foundational elements

Qualifiers are capabilities that high performers shared with all other manufacturers in our study. They are shaped by competition and necessary for all manufacturers to possess, but create no meaningful differentiation.

Qualifiers were identified at both ends of both axes—from low to high in current competitiveness and from low to high in perceived future importance. This debunks the notion that high performers either have superior capabilities across the board or that simply being very good at one “magic bullet” capability differentiates a high performer from their lower-performing counterparts. For example, among the qualifiers, *perceived product quality* and *reputation and experience* were rated highly on current competitiveness and future importance by both the high performers and all other manufacturers. Because all manufacturers are placing the same importance on these capabilities for the future, differentiation is likely to be difficult, even with strong overall performance in these areas.

### The differentiating DNA

The distinctiveness of high performers arises from the set of capabilities we call game changers. These are capabilities where other manufacturers are simply missing the boat; they are neither very good at these today nor placing much emphasis on them for the future. This allows their high-performing rivals to separate and differentiate themselves on these capabilities. Once established, game-changing capabilities can be hard for a competitor to overcome. Over time, they can combine to tilt the landscape in ways that yield long-lasting results.

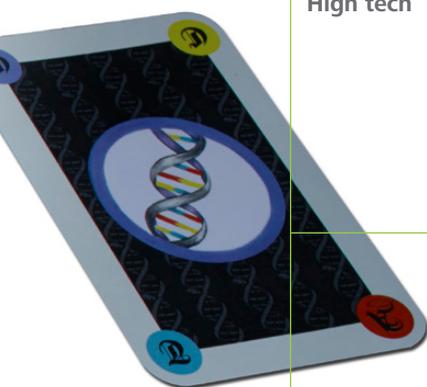
Among our high performers, game-changing capabilities appeared both above the diagonal and below it, beginning from approximately the midpoint of both the current competitiveness and the future importance scales. This suggests that a company can possess game-changing capabilities even if its actual performance in those capabilities is not particularly strong. It just needs to be better than its competitors—good enough to differentiate the company in customers’ eyes. Investing more in these capabilities to improve them may not be necessary; however, doing so could extend a company’s advantage well into the future. *Brand image, leadership and management, business strategy, R&D capabilities, delivery speed, overall manufacturing processes, supplier network strength, and balance sheet strength* were some of the game changers that high performers possessed. They are the elements of the genetic code that truly set high performers a cut above the rest.

### Foretelling the future

The capabilities we refer to as creating advantage capabilities are important because high performers in the process of building their future competitiveness are

## HOW SECTOR DNA DIFFERS FROM THE BROADER MANUFACTURING GENOME

While the index values for both the current competitiveness and the future importance of the capabilities described in this article hold true broadly for high-performing manufacturers across sectors, there are a few differences for specific sectors that reveal the distinct nature of their DNA.



Sector	What is different from the broader dataset for all high performing manufacturers?
High tech	<p><b>R&amp;D capabilities and a highly skilled workforce are qualifiers:</b> Given the focus on innovation and rapid product refresh rates in this sector, and the high demand for top-tier talent at these companies across the globe, strong R&amp;D capabilities and a highly skilled research and engineering workforce are minimum requirements for high-performing high-tech companies. All manufacturers in this sector emphasize these capabilities, making them qualifiers for competition. Strong capabilities in these areas are game changers in most other manufacturing sectors.</p> <p><b>Strong supplier networks and collaboration are also a given:</b> A strong supplier network and a collaboration ecosystem (like the Silicon Valley in the United States) are necessities for high-tech manufacturers, making these capabilities qualifiers in this sector. They are game changers in most other manufacturing sectors.</p>
Industrial Products	<p><b>Reputation, product quality, and customer perceptions are at a premium:</b> These areas are game changers for this traditionally B2B sector, whereas they are qualifiers for most other manufacturing sectors. High performers in this sector are significantly ahead of other manufacturers in developing a stellar reputation and fostering a strong perception of value and quality in their customers' eyes, giving them a valuable competitive advantage.</p> <p><b>Slow to reach global customers and markets:</b> <i>Global sales and marketing capabilities</i> have relatively low values for current competitiveness and future importance and show little differentiation from other industrial products companies even for high performers in this sector. There is room to create significant differentiation in this sector through effective global sales and marketing.</p> <p><b>Lagging on research and innovation:</b> <i>R&amp;D capabilities, innovative product designs, and the overall quality of human resources</i> are areas where even high-performing manufacturers in this sector rated their capabilities as generally mediocre. These are either game changers or creating advantage capabilities in other manufacturing sectors.</p>
Auto-motive	<p><b>Order-to-delivery and global logistics and distribution are differentiators:</b> High-performing automotive companies have strong order-to-delivery and <i>global distribution and logistics capabilities</i>, indicating that they are game changers today.</p> <p><b>Strong global sales and marketing is a requirement:</b> While strong <i>global sales and marketing capabilities</i> are game changers for high performers in many manufacturing sectors, high-performing automotive companies indicate that they are qualifiers in their sector today and see their capabilities being consistently challenged by competitors in the future. Their ongoing fear: Competitors are going to catch up to them soon.</p>

separating their performance on these capabilities from that of other manufacturers. If successful, over time these capabilities are also likely to become game changers for high performers, further differentiating them from their competitors. Creating advantage capabilities are a clear signal of where high performers are headed and how they plan to bolster their competitive capabilities and performance. *Innovation capabilities, quality of human resources, global marketing, and procurement capabilities* dominate the creating advantage group of capabilities for high performers.

### **Step 3. Defining characteristics: Do your capabilities cluster to define unique competitive characteristics?**

If capabilities are high-performing manufacturers' DNA, then clusters of capabilities are the high-performing manufacturer's genes. At first glance, the capabilities on the competitiveness map (figure 2) appear to be scattered at random. However, on closer inspection, patterns emerge. As illustrated in figure 4, high performers' capabilities actually fall into ten broad clusters of competitive capabilities ("genes"). Their position on the graph defines the unique competitive characteristics of high-performing manufacturers. For instance, the "talent-driven innovation" capability cluster includes capabilities around investing in human resources and innovation, including *R&D capabilities, product engineering, skilled workers*, and capabilities that help bring new products and services to the market quickly (time to market). Similarly, the "global new customers and new markets" cluster includes *global sales capabilities, global distribution and logistics capabilities, global marketing capabilities*, and capabilities that aid in *penetrating and growing in new markets*.

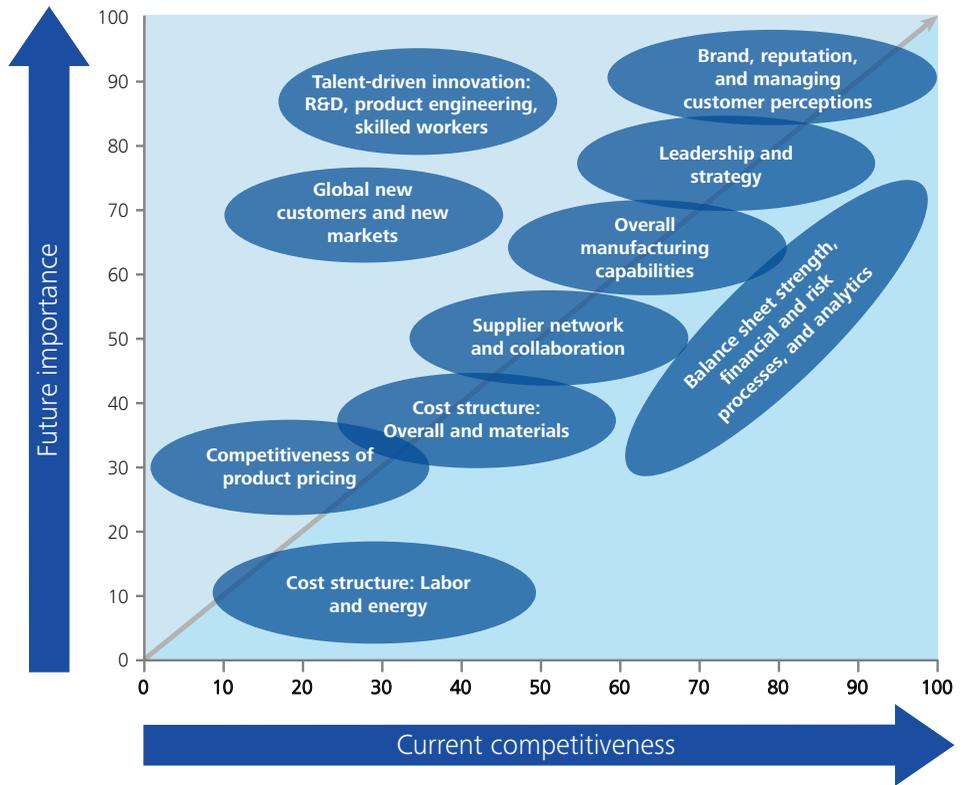
What do these clusters tell us about the competitive characteristics of high-performing manufacturers? And how can the deliberate positioning of individual capabilities in each cluster aid in creating a unique competitive advantage? We split our observations into two groups: first, potential blind spots, and second, future areas of competitive advantage.

#### **Potential blind spots**

**Brand, reputation, experience, and managing customer perceptions may not be enough.** As figure 4 shows, high performers today are highly competitive in the cluster of capabilities associated with "brand, reputation, and managing customers' perceptions." They are also placing considerable emphasis on this cluster of capabilities for the future.

A top-notch reputation and brand is something a company typically takes great pride in. But while some of the capabilities in this cluster—such as *global brand, the quality of the customer sales experience, and delivery speed*—are still game changers for high performers today, many other capabilities in the cluster have become

Figure 4. Defining characteristics: Clusters of capabilities



Graphic: Deloitte University Press | DUPress.com

qualifiers, including *reputation and experience*, *perceived product quality*, *perceived customer value*, and *perceived customer service responsiveness*. Our data show that other manufacturers equal high performers’ performance on these latter capabilities, and they are placing equal emphasis on them for the future. With all manufacturers in our study tracking the high performers step for step on these qualifiers, sooner or later, the laggards are likely to catch up. High performers, therefore, are unlikely to be able to fend off competitors in the future solely on the basis of a good reputation and strong global brand.

**Cost and pricing leave significant room for improvement.** It’s hard to find a manufacturer today that is satisfied with its cost structure. In our study, CEOs’ ratings of their companies’ competitiveness on a wide variety of cost-based capabilities were not particularly high. *Labor cost structure*, *energy costs*, *overall manufacturing costs*, *materials costs*, and *tax cost structure* were all areas in which high performers felt that their competitiveness was mediocre at best. The same was true for pricing: Neither the *total delivered price of products* nor the overall *competitiveness of product pricing capabilities* was considered particularly robust. The views of the high performers were no different on this score than those of the rest. But paradoxically, high performers are not placing much importance on these capabilities for the future. The result is that nearly all of the cost- and pricing-related capabilities

we examined were qualifiers, showing no difference between high performers and other companies. Based on this data, there appears to be considerable room for improvement in these areas among low and high performers alike.

**Financial controls and balance sheet strength may be more important than high performers think.** *Balance sheet strength, financial controls, risk management processes, and data analytics capabilities* are all clearly differentiated areas of strength for high performers today; yet, high performers saw them as relatively unimportant to future competitiveness. These represent a special class of capabilities that we term *stealth* game changers, which are strong capabilities that high performers either may not recognize they possess or are becoming distracted and losing focus on their importance. It is certainly possible that high performers may be losing sight of strengths that helped them weather the global downturn as they seek out new capabilities and try to achieve other new goals. This would be a mistake. A strong balance sheet, robust financial and data analytics capabilities, and prudent risk management processes can provide substantial differentiation in the market—in effect, improving competitiveness under the radar. Customers do not directly see these capabilities, but strength in these areas is a strong foundation for long-term financial success, flexibility, and agility.

#### **Future competitive advantage**

**High performers are getting serious about innovation.** Strong research and development capabilities, rapidly delivering innovative new products to markets, and creating a culture promoting meaningful innovation are where high performers are aiming their competitive strategy for the future. Product extensions that expand the breadth of current product lines are giving way to truly “new”—that is, disruptive—product (and service) innovation. Importantly, all of these capabilities are either game changer capabilities today—such as *research and development*—or capabilities where high performers are attempting to create a competitive advantage in the future, such as developing a sustainable culture of innovation (*innovation culture*) and consistently delivering *innovative product designs*.

**Talent wars are just beginning.** Innovation requires talent, so it is not surprising that high performers are placing considerable emphasis on talent acquisition and human capital development at all levels: skilled production workers, researchers, scientists, engineers, and technicians. Just as executives felt that talent-driven innovation was far and away the most important determinant of a nation’s competitiveness,<sup>4</sup> they emphasized the same capabilities as competitive differentiators for their companies. The high performers in our study showed a statistically significant difference as compared to rest of the companies on the strength of their current talent and innovation capabilities and their perceived future importance. This suggests

## IN SUPPORT OF THE THREE RULES

Research in support of *The Three Rules: How Exceptional Companies Think* offered a radically different approach to understanding superior long-term performance, uncovering what makes a company truly great.<sup>6</sup> Conducting rigorous statistical research of tens of thousands of companies over almost half a century, and identifying those several hundred that did well enough for a long enough period of time to qualify as truly exceptional, the researchers discovered that the very best companies followed three seemingly straightforward rules: (1) Better before cheaper—in other words compete on differentiation other than price; (2) Revenue before cost—prioritize increasing revenue over reducing costs; (3) There are no other rules—change anything necessary to follow rules 1 and 2.

Our findings show how high-performing manufactures are translating these decision-making rules into capabilities. Figure 4, shows that the best companies are focused on, for example, building a strong brand, exceeding their customers' expectations of product and service quality, pursuing talent-driven innovation as a competitive advantage, developing superior manufacturing capabilities, and expanding both global sales and marketing capabilities along with supplier networks and distribution capabilities. Creating lower cost structures or more competitive (lower) product or service pricing is less important—clearly a case of better before cheaper and revenue before cost.

These twin findings—arrived at independently, yet strongly supportive of each other—suggest that manufacturers should proceed with caution. In particular, top performers looking to reduce cost had best be careful that they understand the implications of further cost reduction: When you're at the limits of your company's cost/performance trade-off, you need to truly innovate—i.e., break those trade-offs—if you are going to enjoy a cost advantage AND a differentiation (performance) advantage that earns higher prices. It's great if you can do both simultaneously, but don't get greedy. Remember the three rules!

that talent-driven innovation is poised to become a key differentiator in the future for these manufacturers.

**Manufacturing is globalizing again.** Over the past 20-plus years, a “Big Shift” occurred in manufacturing supply chains: They globalized in dramatic fashion, propelled by the liberalization of trade, low out-of-country wages, and the rapid expansion of digital technology infrastructures.<sup>5</sup> But the emphasis was initially, and primarily, on realizing supply chain cost savings, and only secondarily on serving new customers and new markets. Our research suggests that the focus has now flipped. Granted, global, disaggregated supply chains are now increasingly being regionalized, driving down the risks associated with currency fluctuations, labor cost increases, and protectionist politics, among others. But at the same time, high

performers are now placing a great deal of emphasis on the development of global new customers and markets. Of all the capabilities ranked in our study, none show a greater difference between their current competitiveness ratings and their perceived future importance than capabilities related to developing “global new customers and new markets.” Globalization to find new customers and grow new markets, rather than to pursue supply chain savings, is the new trend.

**Supply chain networks are leveraging collaboration for innovation and talent.** Our data indicate that the *strength of the supplier network* and the productive quality of the *collaboration with suppliers* are game-changer capabilities today. In addition, high performers are targeting improvements to their *overall procurement capabilities* to pursue these ends and create greater competitive advantage in the future. The *cost and availability of materials* and components are still important—but low costs in these areas have become qualifiers. In the future, high-performing companies, especially those for which rapid new product and service innovation is a key competitive strategy, will differentiate themselves by leveraging the innovation capabilities and talent of a strong supplier network. It is difficult to build and maintain a supplier network in which genuine collaboration and meaningful innovation take priority over simple cost reduction. But the potential impact on a company’s ability to consistently outflank competitors and to rapidly bring new innovations to market with superior overall economics can be significant.

## FINALLY, GROWTH

Taken together, the emphasis on talent and innovation, along with the focus on developing new global customers and markets, suggest that high-performing manufacturers are keenly focused on global growth. Most high performers have largely been successful in the recent past by driving profitability increases through a tight focus on cost management, headcount management, and creating overall supply chain cost advantages while carefully managing their balance sheets. Often, though, top-line growth has been elusive. Global uncertainty about government policies, economic outlooks, and consumer spending has resulted in subdued revenue growth expectations for manufacturers worldwide.

In their *Three Rules* research, comprising a database of more than 25,000 companies spanning nearly 50 years, Michael Raynor and Mumtaz Ahmed uncovered only 250 “miracle workers” that consistently outperformed their closest competitors since their inception. Only 12 of these were manufacturing companies.<sup>7</sup> Manufacturers have lagged the broader markets in growth and returns for a very long time.

Our research suggests that high-performing manufacturers are now—finally—

getting truly focused on the capabilities that drive growth: disruptive innovation, superior talent development and acquisition, finding new global customers, and creating new global markets. By their own assessment, they are not particularly competitive in these areas today. But their strategic intent is clear: to develop the capabilities that will separate them from their competitors in generating and sustaining growth. Whether they will be successful remains to be seen, but one thing is apparent: they are exhausting other alternatives for changing the game, and only real growth will keep them at the front of the pack. **DR**

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*Acknowledgements: We would like to give a special thank you to **Deborah Wince Smith**, president and CEO of the Council on Competitiveness, and **Sam Allen**, chairman of the Council on Competitiveness and chairman and CEO, Deere & Company, for their support and collaboration over the past five years as we developed our global manufacturing competitiveness research. Similarly, we extend a special thank you to the World Economic Forum and to **John Moavenzadeh**, senior director and officer, for his support as we collaborated on the Forum's Future of Manufacturing and Manufacturing for Growth research efforts and pursued insights together around the world.*

*Additionally, we would like to acknowledge the important ongoing collaborations we have with Manufacturing Institute CEO **Jennifer McNelly** and chairman **Ron Bullock**, chairman and CEO of Bison Gear and Engineering; the National Association of Manufacturers and its CEO **Jay Timmons**, and its chairman **Doug Oberhelman**, also chairman and CEO of Caterpillar; and the Manufacturers Alliance for Productivity and Innovation (MAPI) and its CEO, **Stephen Gold**, and its chairman, **Carlos Cardoso**, also chairman, president, and CEO of Kennametal.*

*Finally, we would like to give special thanks to **Pandarinnath Illinda** (Deloitte Support Services India Pvt. Ltd.) and **Srinivasa Reddy Tummalapalli** (Deloitte Support Services India Pvt. Ltd.) for their contributions to the research.*

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