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The Art of Anticipating Disruptions

How some companies—Cisco, Corning, Intel, Shell, Wyeth (Pfizer) get it right

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WHITE PAPER

The Art of Anticipating Disruptions¹

How some companies – Cisco, Corning, Intel, Shell, and Wyeth (Pfizer) – get it right

Prediction is very difficult, especially about the future.

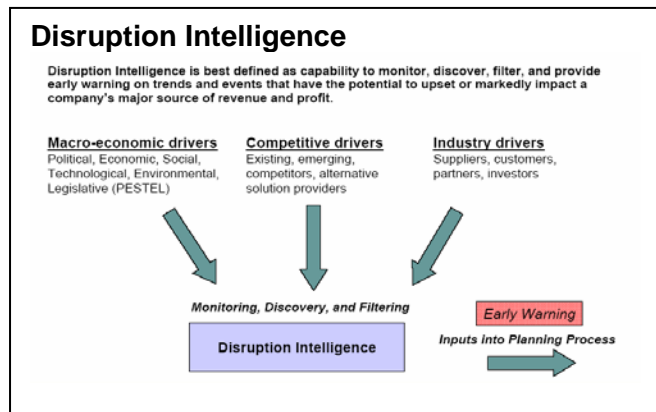
–Niels Bohr (1885-1962), *Nobel Prize-winning physicist*

By: Leonard Fuld and Mark Chodnowsky

Missed opportunities, flawed judgment, truly awful mistakes—they all can appear incredibly obvious with the advantage of hindsight. Ramping up SUV manufacturing in an era of rising gas prices? Choosing film processing over digital imaging as a sustainable business plan? Betting big on dot-com ventures just as the bubble was about to burst? Approving jumbo loans just as the mortgage market was primed to collapse? Eagerly investing millions in a billion-dollar Ponzi scheme? What were they thinking?

The first rule is simple: you have to be paying attention. Throughout 2007 and well into 2008, the most obvious warnings from the mortgage industry went unnoticed by nearly all of the people who were in a position to know better. Economist James K. Galbraith said recently that maybe a dozen of his professional colleagues, out of some 15,000 economists in the U.S., foresaw the credit crisis that became official in July 2008 with the collapse of IndyMac and the subsequent bailouts of Fannie Mae and Freddie Mac. To Galbraith, the failure of his colleagues to provide any widespread alarm represents “an enormous blot on the profession.”

One explanation is that economists, like most of us, look at the world through a particular set of lenses. During 2007 and 2008, it’s safe to conclude that most economists in the U.S. were focused on the wrong set of issues, or they weren’t able to bring the right issues into focus. The best practitioners of disruption intelligence—those most skilled at identifying early warning signals of events that can change their world — always take the broadest possible view. They collaborate with specialists in a wide variety disciplines, and they evaluate the fullest range of possible influences: political, social, technological, and environmental, legislative, as well as economic. Then they reach the final step: finding what if anything is significant in



¹ Interviews and research for this paper were conducted from 2007 through the first quarter 2009. The citations and descriptions cover this time period.

all that information. It's a step that requires skill and perseverance—and something else, a certain way of thinking that can be called an “art.”

Fuld & Company recently conducted an analysis of how companies in a variety of industries try to anticipate disruptions. For this study, we defined disruption in the broadest possible sense—anything that has the potential to fundamentally change the way a company operates: a break-through technology, a lower-cost competitor, a trend in consumer lifestyles, a change in regulatory oversight, a shift in the economy. In the first round of screening, Fuld identified 105 companies that appeared to have well-run programs based on a short list of benchmarks.

After examining these candidates in more detail, we selected 16 finalists that demonstrated a high degree of skill in identifying the early warnings that allow them to anticipate disruptions in their respective markets. The finalists represent a cross-section of the global economy: pharmaceuticals, health care, oil and gas, manufacturing, technology, and public relations/advertising. Within each company, we interviewed one or two executives directly responsible for day-to-day competitive intelligence operations.

From those interviews, we identified five key indicators of success, the elements that make these companies best-in-class at anticipating disruptions.

- **Credibility** – Intelligence activities have the explicit support of senior management.
- **Investment** – Most intelligence programs have full-time staffs and dedicated budgets.
- **Communication** – Early warnings are effectively communicated to key stakeholders.
- **Training** – Business managers can factor early warnings into their strategic planning.
- **Action** – Senior executives are prepared to respond to disruptive events.

It's no surprise that all of the 16 finalist companies demonstrated strengths in at least four of these five categories. What was unexpected was the variety we found in the size and structure of their intelligence organizations, the range of formality to informality, and the level of funding. For example, in a sprawling company like Shell, which has earned international recognition for its scenario and futuring capabilities, the core intelligence team at corporate headquarters has no more than six members who are linked to an intelligence network that spans global operations. For networking innovator Cisco, which has displayed great skill in anticipating market transitions, competitive intelligence is considered a cultural asset, part of the company's DNA. Intel, the world's top chipmaker, on the other hand, cultivates its intelligence capabilities very carefully: all senior managers are invited to attend training in strategy development and analysis.

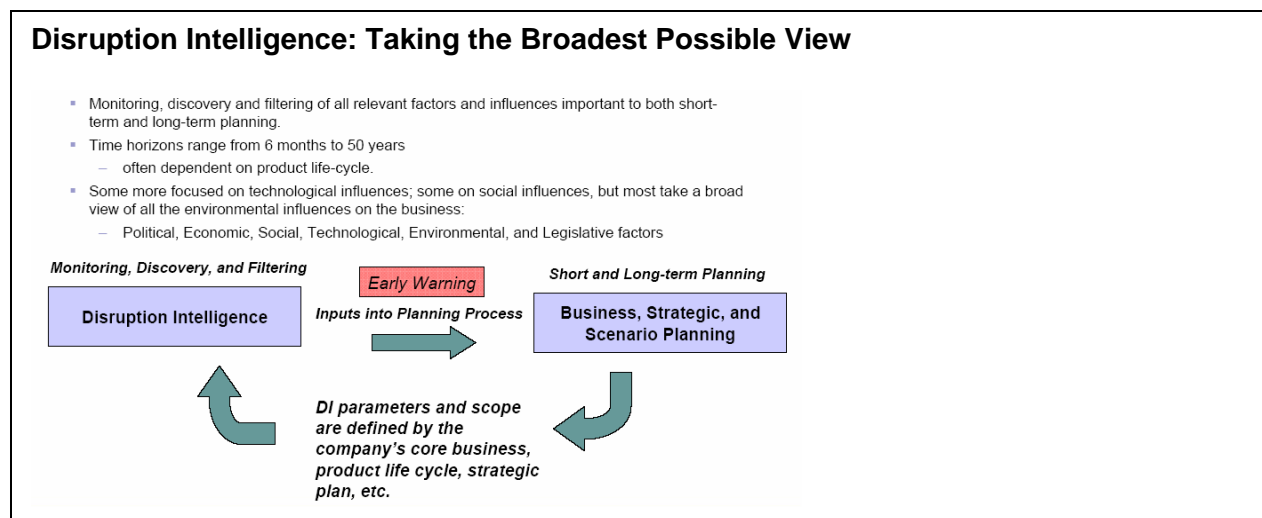
“Identifying disruptions is an art, not a science. There are all sorts of tools out there, and some of them are very useful. But ultimately it's an art.”
Karl Rose, chief strategist, Shell

Funding levels also vary widely. At the low-end, a large pharmaceutical firm dedicated as little as \$200,000 to its intelligence efforts. More typically, the companies in this study reported annual spending in the \$1 million to \$7 million range.

Given the range of programs and resources among these 16 firms, companies seeking to expand or realign their own intelligence capabilities should feel some confidence. There is no one right or wrong way to proceed, although most intelligence managers put the highest priority on these three elements: C-level support, dedicated staff and budget, and effective internal communication. With these three assets, most

companies can greatly improve the odds of making the right bet should the conditions of their business suddenly change. Even then, it's still a matter of improving the odds, not a sure thing. As Karl Rose, currently chief strategist and the former head of competitive intelligence at Shell, cautions, "Disruption intelligence is an art."

The next five sections of this paper describe each of the success factors for disruption intelligence in greater detail, citing examples and comments from the managers we interviewed. What can you learn? Good intelligence never arrives neatly packaged in a report or presentation. It's a dynamic asset within a company's business, exchanged and refined every day in ongoing analysis and debate, and finally decision making. The only real measure of disruption intelligence occurs when an organization fails to act—to defend its position or chart a new course. Best-in-class organizations don't get it right every time, our sources admitted, but the odds are always in their favor.



This figure illustrates the role that disruption intelligence plays in a typical strategic planning cycle, providing the early warning flags that become critical inputs to the planning process. The companies in our study conducted planning exercises similar to this at least once a year, sometimes twice, sometimes quarterly.

Credibility – Intelligence activities have the explicit support of senior management.

The best predictor of success for disruption intelligence is the explicit support of senior management, preferably at the C-level. At more than half of the 16 companies we interviewed, intelligence programs had a champion at the C-level. Many of the senior intelligence managers we interviewed reported directly to a C-level executive. At most of these companies, the senior intelligence manager either reported directly to a C-level executive or was just one level away.

Royal Dutch Shell, based in The Hague, has a 40-year history of looking at discontinuities using scenario technology. By the late 1990s, the company's competitive intelligence program had earned global recognition and respect, drawing visits from a long list of companies and government agencies in the U.S.

and Europe hoping to replicate Shell's success. As a \$458.4 billion company operating in global markets, Shell takes a long view of its landscape. "We look at an extremely large timeframe for anticipating possible disruptions, as far out as 2050," says Shell chief strategist Karl Rose, whose task is to look at long-term strategic trends. The directorate accountable for strategy and business development, which includes the scenario and competitive intelligence teams, consists of fewer than 40 FTEs. Viewed against the scale of Shell, the group is small but influential, and plays an important role in informing the company's decision makers. "There are few discussions about the future of the industry at an executive level where our teams wouldn't provide significant input into the process," Rose said.

"What makes a good CI analyst? Aptitude is more important than the specific background. Rational, logical, perseverant...a cross between an investigative journalist and a scientist, with a clear understanding of the business."

Craig McHenry, senior director of Competitor Insights, Wyeth

Shell employs three methodologies to anticipate market changes: scenario planning, intelligence analysis, and horizon scanning. "With scenario planning, we look at changes in structural drivers, and from that we make predictions about possible future events that describe those changes," Rose said. "Intelligence is the opposite process, where you start with events and then ask yourself, what could be the underlying changes in drivers? Horizon scanning is what we call our process for anticipating emerging technologies." Shell is often asked to share best practices, and there is a long list of visitors who have come to learn first-hand. "Especially our use of scenarios to identify disruptions. That seems to be of great interest to people," Rose said.

Investment – Most intelligence programs have full-time staffs and dedicated budgets.

Nearly all of the companies we interviewed have made explicit investments in their intelligence programs. Some concentrate their intelligence functions in a centralized group. Others distribute intelligence teams to various business functions such as R&D or marketing. While a few described their intelligence efforts as an organic part their company's culture, the nearly universal model is to have full-time personnel with a dedicated budget.

After a workforce reduction 2002, Wyeth lost the momentum that it has been building in competitive intelligence since the early 1990s, recalled Craig McHenry, now senior director of Competitor Insights at the Philadelphia-based pharmaceutical firm. At the time, McHenry was reassigned to direct oncology market research, but people kept calling. "They'd say, you used to do this, can you help me out," McHenry recalled. "We worked that way for a couple years." Finally, he succeeded in making the case to senior management that the current model was not an effective way to organize either CI or market research. "Since then we've seen steady growth in terms of assets and resources. Overall the organization is beginning to depend on us, feel comfortable with us," McHenry said, adding "I grew up in an

agricultural part of the country...letting the field lie fallow for a year or two helped people realize the value of what they were missing.”²

When Wyeth reconstituted its market research and CI functions after a period of retrenchment, the company built a carefully matrixed organization of business and science professionals capable of providing deep subject matter expertise around various decision support functions. The market and consumer research team was assembled to follow health care providers, consumers, patients, and care givers, while the CI team focuses on competitors in the health care system. Combined, the teams consist of about 60 people.

Within Wyeth’s decision support matrix, the research teams are organized into vertical Centers of Expertise (COEs). As senior director of the Competitor Insights COE, McHenry manages a team of six intelligence managers who own the competitive landscape for a specific Wyeth brand. Horizontal rows across the matrix align his team members with specific disease and therapy areas. At the end of each row is an “insights partner” who acts as a liaison, coordinating and prioritizing all the insights going back to the brand manager. As McHenry explained, “Many of the areas we look at require more than just one area of expertise or one focus.”

While some members of McHenry’s team have a background in chemical engineering and science, he hasn’t found a predictable profile of who will make a good CI analyst at Wyeth. “Aptitude is more important than the specific background,” McHenry believes, citing his “eclectic” team of six, which includes a chemical engineer with an MBA, a 20-year chemical scientist with a background in intellectual property, a medical science librarian, an MBA specializing in banking and finance, a market research analyst (former analytical chemist) with expertise in qualitative research methodology, and an information scientist with secondary data expertise. McHenry himself has a master’s in computer science education.

Instead of centralizing, Intel distributes its strategy groups throughout the company, within the various business units, where analysts scan the market, look at competitors, and generally assess the landscape. Does the world’s #1 chipmaker look beyond technology? “We absolutely do,” said Evan Berrett, manager of Intel’s management development strategy and programs. “We’re always looking at the broader trends and themes. We have ethnographers, sociologists, anthropologists looking at those kinds of issues. We don’t have a lot of them, but the ones we have are very good.” These resources typically reside in a specific business unit, but they are often utilized as corporate assets, called on to consult and advise throughout the company. Berrett recalled a “brilliant anthropologist” who spent a year in Asia and, upon her return, was invited to present her findings to Intel’s CEO and others. Intel seeks out multiple sources of information, Berrett said, to make all kinds of decisions and maintain a global perspective: What are possible usage models for people all over the world? How could they use technology in what they do every day?

At San Jose-based Cisco Systems, anticipating change is everybody’s business. Marty Palka, chief intelligence analyst, describes the culture there as open and collaborative, where it is assumed that everyone is engaged in the intelligence process. “Innovation, market transitions, driving change—it’s on

² Interviews with Craig McHenry of Wyeth were conducted in late 2008 and early 2009 prior to its acquisition by Pfizer. Thus, the information reported in this document reflects Wyeth activities only.

our badge. It's not one specific part of the Cisco. It's within the whole culture, spread among the R&D teams, sales, and marketing," he explained. "Certainly there are groups inside Cisco who spend a greater amount of their time thinking about market transitions, but all of our employees are encouraged to collaborate, align, and submit new ideas."

He noted, "We owe much of our ability to identify market transitions to our customers—listening to their needs, ideas, challenges, what is needed for their success. They guide where we go. We stay ahead of market shifts so that we are ready to help our customers evolve, as their industry evolves. We aim to identify these transitions three to five years before they become obvious to everyone else. By identifying them early, we can set the vision, differentiate our strategy, and make the appropriate investments for successful execution."

Communication – Early warnings are effectively communicated to key stakeholders.

There's a direct correlation between the formality of a company's intelligence operations and how it communicates early warnings. In the companies we interviewed, communication styles ranged from Wiki-based collaboration, to strategic gaming simulations, to formal planning sessions. The bottom line is to deliver early warnings of potentially disruptive events to the right people, in the most useful and actionable way. A few of the companies we interviewed described their communication as organic, "in the air" of their daily operations. However, most companies said they conduct regularly scheduled meetings with key stakeholders, some as often as once a month.

At Wyeth, each brand or product area conducts an annual planning session, which includes a review of potential factors that may signal a disruption. In addition, McHenry said, "The major brands or products areas conduct a strategy workshop usually once or sometimes twice a year. So, all of our major brands have at least two points during the year when they are going to be thinking about disruptive factors."

Over the past several years, Cisco has formed boards, councils, and working groups to drive faster and more effective decision making throughout the organization. The company also launched an Emerging Technologies Group to focus on innovative ideas that will become the next billion-dollar lines of business. "We all needed to become smarter about how to collaborate globally, form communities of interest, and have access to insightful information," said Palka. Today, Cisco continues to transform its processes using both Web 2.0 and Cisco's own conferencing technologies. According to Palka, internal use of Cisco TelePresence currently averages about 4,000 meetings a week and has reduced travel expenses from an annual run rate of \$750 million to the current run rate of approximately \$350 million. Palka describes Telepresence as a "transformational technology" for Cisco and its customers. "When the number and quality of our customer interactions increases, the more we learn," Palka said, "and our ability to deliver disruptive intelligence increases."

At Corning, strategic planning is run very much like a research project. Daniel Ricoult is director of technology assessment at the specialty glass and ceramics manufacturer headquartered in Corning, NY. He co-manages the Exploratory Markets & Technology (EMT) group with Deb Mills, who provides deep market expertise. He explained, "We explore new markets and technologies, often starting with a blank sheet of paper. The goal is to identify the next business opportunities for Corning, as long as we can see a path for them to grow to at least a half billion dollars." The analysts in the EMT group look at timelines

that range from 5 to 20 years out. Their primary focus is on the more distant horizon, Ricoult explained, “because we acknowledge that it may take 15 years to develop component solutions to some of the difficult systems problems we identify.”

After conducting workshops in selected topic areas and conducting additional market and technology research, the EMT staff summarizes the results in a series of white papers. “For example, we recently did a green buildings workshop involving industry experts as speakers and about 70 internal participants,” Ricoult said. “We then brainstormed ideas to generate a list of topics and wrote high-level white papers on the most promising. We typically write about 15 to 25 white papers a year. We rank them, pick the top four or five, and proceed to do an in-depth analysis, which takes about six to eight months. The outcome of this exercise is a recommendation we take to the early-stage technology governance body headed by the CTO.” If approved, the recommendation is transformed into a research project, the first stage of EMT’s five-stage innovation process. Although several recommendations from the EMT group have already led to a number of Stage 1 and 2 projects, such recommendations are not always positive. “In fact, for the last three opportunities we presented to the CTO, we recommended that we not go into those areas,” Ricoult said. “It is just as important to know what you should *not* be investing in.”

Training: Business managers can factor early warnings into their strategic planning.

When we asked the sources in our study to describe the most difficult part of their jobs, they were nearly unanimous in their answers. The biggest challenge, in their opinion, was getting their business management to respond to early warning intelligence. Two companies in our study, Wyeth and Intel, have tried a new approach over the past few years and reported positive results. Both have implemented training based on strategic gaming exercises to help business managers assess the impact of early warnings and evaluate their response.

At Wyeth, each of the company’s major brands participates in a strategy game workshop once a year. According to Craig McHenry, these workshops are becoming more and more common because they allow the brand team to come together and spend time thinking strategically, away from the demands day-to-day operations. “We use these workshops to look at potential factors that may influence competitors and our company, something that may create an asymmetric situation, where one company may benefit or may do better in that environment,” said McHenry. “Some teams will actually go through a more formal process to develop a scenario plan, then create a couple of dimensions of uncertainty that they can play against the trends and look for discontinuities that may signal some disruptions.” As workshop facilitator, McHenry takes responsibility for helping teams adopt best practices and make what works in one area available to another.

“The absolute best way to train people [to anticipate disruption] is to do real work. It’s very powerful: people are learning strategy, and at the same time they are developing strategy. That’s success for me.”

Evan Berrett, manager of management development strategy, Intel

Evan Berrett and others on Intel’s Learning and Development team have been the creative force behind programs delivered to Intel senior managers worldwide. Within the past few years, Berrett has introduced

“strategic gaming” simulations to Intel’s leadership development programs. Berrett estimates that Intel might facilitate between 10 and 20 competitive games or simulations in any given year with senior leaders or business groups.

Berrett has also received a growing number of requests from senior executives, asking for help in running “real-world” games not just for learning and development, but to develop Intel’s strategy today in for the future. “It’s still catching on,” said Berrett. “At this point, we’ve done eight structured competitive games for business units,” he said. “What started out as a training exercise has become a real-world planning method.” Strategic gaming has also become a key action learning component of Intel’s programs, where skills are taught and immediately applied to real business situations. “The absolutely best way to train people is to do real work,” Berrett said. “That’s what action learning is all about. We’ll teach the strategy course work to an intact business team, and then that business—instead of doing a simulation—will run their own strategy through the game.”

Gaming methods are helping Intel managers test strategy early so that strategies are tested – at least theoretically – before they make strategic decisions. “Intel doesn’t have a centralized CI group, although we do have CI professionals.” said Berrett. “Each business unit is responsible for figuring out what’s going on with their own strategy, what’s going on the ecosystem they face, and how industry changes might disrupt what we’re doing. Disruption is definitely part of our language, since we come in on both sides of the disruption equation. In some situations we are disruptors, and in others, we are wary of being disrupted.”

Action: Senior executives are prepared to respond to disruptive events.

There are many cautionary tales in the history of disruption intelligence—companies who were primed to make the right move, but failed to act. There may be no company with a more compelling tale than Kodak, the dominant player in the photo film and processing industry throughout the 1980s. During that period, Kodak clearly saw the future of film-less photography, filed 1,000 patents around digital imaging, even announced a 1.4 megapixel chip years ahead of its competition. Then, curiously, it remained focused on its traditional photo business while HP took the lead in supplying color printers to consumers, Fuji won 60% of the digital minilab market, and upstarts like Flickr and Snapfish launched digital imaging and photo sharing sites.

Of the 16 companies we interviewed, the most successful at anticipating disruption have a C-level champion who is ready to engage in the process as well as the outcome. At nearly all of the 16 companies we interviewed, the top strategy executive either reported directly to a C-level executive or was just one level removed. All of the sources we spoke with acknowledged the impact a C-level sponsor can have on the outcome of intelligence efforts. As one director of business intelligence observed, these activities require a tremendous investment of intellectual capital to be successful—and not just by the people providing the intelligence. “To make this whole thing work,” he said, “you need to get management to take it seriously.” It’s not always easy, he cautioned, even in a well-regarded, well-funded group like his. He reports directly to the company’s vice president of planning, who is a member of the executive

committee. He has a budget of \$8 million for primary and secondary research, and he directs a full-time staff of five. Still, he said, “It is hard to get something into the minds of senior management and senior leadership. The key is not to get too discouraged.”

Conclusion: Modest budgets, small teams can produce best-in-class disruption intelligence.

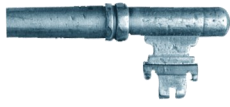
For most companies, regardless of their size, anticipating disruption depends on a relatively small, highly focused team of people who have the aptitude for intelligence gathering plus the energy to engage the organizations they serve. These teams can be funded in a variety of ways. Some very successful programs are funded by a C-level executive. Other equally successful programs are funded by individual business units or by contributions from various departments, such as R&D, IT, marketing, and sales. The level of funding is relatively modest, even for the largest companies in our survey. At the low end, a large pharmaceutical firm spent as little as \$200,000. At the high end, several companies spent in the range of \$1 million to \$7 million. Even in the largest companies, the number of people dedicated to business intelligence activities is relatively small. In our study, the largest companies had dedicated organizations with 40 to 80 people.

Based on our interviews, the single most important factor in achieving a successful outcome is the engagement of senior leadership in assessing the information at their disposal and their ability to respond.

About Fuld & Company and the Authors

Fuld & Company, headquartered in Cambridge, Massachusetts as well as offices in London, Dalian, and Delhi is a leading research and consulting firm in the field of business and competitive intelligence. Founded in 1979 by Leonard Fuld, the company offers the full range of business intelligence services, including research and analysis, strategic consulting, and war game exercises to help clients understand their external competitive environment. Books by Leonard Fuld include *The New Competitor Intelligence* (1995) and *The Secret Language of Competitive Intelligence* (2006). He is a co-founder of the Fuld Gilad Herring Academy of Competitive Intelligence, which has trained over 10,000 professionals in the art and science of competitive intelligence. Mark Chodnowsky is Vice President at Fuld & Company where he currently leads the Industrial and Consumer Goods practice. He has 20 years experience in competitive intelligence and strategy consulting to a broad range of leading global technology, manufacturing, and professional services companies.

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The Global Leader in Competitive Intelligence

ABOUT FULD & COMPANY

Fuld & Company is the world's preeminent research and consulting firm in the field of competitive intelligence and business strategy. Founded by Leonard Fuld, a pioneer and leading authority in the field, Fuld & Company provides customized research and analysis, business process consulting, strategy gaming and scenario analysis, and training to help clients understand the external business environment. Our ultimate goal is to help our clients make better decisions and improve their performance.

Since 1979, Fuld has served many public and private clients, including over half the U.S. Fortune 500, as well as numerous international firms, and our client roster continues to grow. Within those companies, we serve the competitive intelligence needs of many functional areas including operations, R&D, strategic planning, new ventures, e-commerce, M&A, marketing, sales, distribution/logistics, purchasing, and human resources. Our staff is organized across industry lines, with centers of expertise in technology, telecommunications, financial services, business services, insurance, pharmaceuticals/healthcare, medical devices/diagnostics, consumer products, and industrial manufacturing.

With offices in Boston, London, and Manila, Fuld & Company has global in-house, on-the-ground resources and language capabilities, since many of our assignments involve participants from locations around the world. Whether we are analyzing markets or competitors, helping companies establish their own competitive intelligence capabilities, facilitating strategy game and scenario analysis simulations, or training staff in intelligence-gathering methods and analysis techniques, our work translates into bottom-line gains for our clients.

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