

The AMR Supply Chain Top 25 for 2010

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2010 marks the sixth year of our annual Supply Chain Top 25 report. The goal of this research has always been to raise awareness of the supply chain discipline and how it impacts business. Here we reveal the results of this year's ranking and discuss where the Supply Chain Top 25 is headed in the future.

Key Findings

- In the No. 1 slot for the third year running is Apple, with stellar financials and strong votes.
- Procter & Gamble (P&G), the only company to have been in the Top 5 for six consecutive years, comes in at No. 2, with Cisco (No. 3), Wal-Mart Stores (No. 4) and Dell (No. 5) right behind it.
- Five companies joined the Top 25 for the first time: Research In Motion (RIM), Amazon.com, McDonald's, Microsoft and Inditex.
- Two themes emerged from our review of this year's winners: a re-examination of the benefits of vertical integration and increasing advances in the realm of sustainability.

Recommendations

- Apply demand-driven principles to coordinate and integrate the functional areas of supply, demand and product management in order to better sense, shape and respond to changes in market demand.
- Take a cue from the leaders when designing your own supply chain strategy. Think outside in, starting with your customers and working back through your trading-partner network to design a profitable response. Remember that one size does not fit all. Define how many supply chain types you have and design a customized response for each.
- Balance operational excellence with innovation excellence for superior overall performance.
- Focus on acquiring, mentoring, growing and retaining supply chain talent.
- Measure your supply chain as your customer experiences it. Use the right supply chain and product metrics to consciously manage performance, and foster a culture that embraces measurement for continuous improvement.

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ANALYSIS

2010 marks the sixth year we've published our annual Supply Chain Top 25 report. The goal of this research has always been to raise awareness of the supply chain discipline and how it impacts business. Underpinning the transformation of the discipline, from basic cost center to essential competitive weapon, is an inflection point in the connectivity and speed of the global supply chain. If 1995 is used as a milestone to mark the beginning of Internet-enabled supply chains, we see a rise in the rate of productivity improvement across industries that promises to change the world economy. It's our contention that supply chain professionals are at the cutting edge of this revolution.

The term "value chain," however, may actually be a better descriptor: By embedding product and process innovation in supply chain operations and consciously managing and shaping demand from a customer, production and fulfillment standpoint, the companies included in our Top 25 are doing a lot more than just shipping. Twenty years ago, a typical product company had the supply chain organization reporting to manufacturing, with responsibility mainly for inbound materials management and outbound shipping. Now new data shows supply chain reports to manufacturing in only 6% of companies, while in 61% of companies, the head of supply chain position reports directly into the CEO, general manager or president of the business. It's clear supply chain has grown up, with the business taking notice.

Along with this change, evidence of the link between supply chain activities and financial results continues to build. A study by Dr. Alex Ellinger and a team of colleagues at the University of Alabama and Texas A&M found that the leading supply chain performers, as defined by the Supply Chain Top 25, are more financially successful than their competitors. The team used the Altman Z-score as its measure of financial success. Developed originally by Edward Altman in 1968 to predict bankruptcy, the Z-score has become a widely used tool for assessing overall financial health. It's applied to evaluate and compare the financial performance of firms in a variety of industries.

The score is made up of five key balance-sheet ratios that assess a manufacturing firm's financial health:

- Liquidity — Working capital/total assets
- Leverage — Retained earnings/total assets
- Profitability or operating efficiency — Earnings before interest and taxes/total assets
- Solvency — Market value of equity/total liabilities
- Activity — Net sales/total assets

According to the theory, which has been proven over time, a score above 2.99 reflects a firm that is financially sound, and a score below 1.81 points to bankruptcy. Dr. Ellinger and team found that the Z-scores for the Supply Chain Top 25 companies were consistently and significantly higher than their close industry competitors. The Top 25 companies averaged a score of 4.439, while the competitors' average was 2.99 — just above the bankruptcy bar (see "Supply Chain Top 25: Connecting Supply Chain and Financial Performance" for more on this).

On another front, a 2010 study by Long Chen and Lu Zhang from Washington University and the University of Michigan, which is slated for publication in the Journal of Finance, considers a firm's supply-chain-related capabilities to predict its stock returns. The authors seek to replace the long-used capital asset pricing model (CAPM), which, with some updates since its original definition in the 1960s, relies on past volatility of a stock, company size and valuation as predictors. The new

formula bases its predictions instead on balance-sheet metrics traditionally linked to a company's operational performance: return on assets (ROA), inventory and investment in property, plant and equipment (PP&E).

1.0 The AMR Supply Chain Top 25 for 2010

Figure 1. The AMR Supply Chain Top 25 for 2010

Company	Peer Opinion ¹ (154 Voters) (25%)	AMR Opinion ¹ (27 Voters) (25%)	3-Year Weighted ROA ² (25%)	Inventory Turns ³ (15%)	3-Year Weighted Revenue Growth ⁴ (10%)	Composite Score ⁵
1 Apple	2787	508	11.7%	60.7	21.7%	8.21
2 Procter & Gamble	2416	567	9.0%	4.9	3.5%	5.91
3 Cisco Systems	1678	501	11.4%	11.8	4.2%	5.43
4 Wal-Mart Stores	2567	365	8.2%	8.7	4.3%	5.18
5 Dell	2049	273	7.1%	47.4	-5.4%	5.06
6 PepsiCo	1244	396	15.0%	7.4	5.3%	4.91
7 Samsung	1111	408	10.2%	17.8	17.6%	4.90
8 IBM	1566	300	11.3%	19.8	-0.7%	4.52
9 Research In Motion	299	89	23.7%	13.7	62.4%	4.49
10 Amazon.com	1369	215	7.1%	11.9	30.4%	4.13
11 McDonald's	506	90	13.7%	134.6	1.1%	3.97
12 Microsoft	363	151	21.1%	12.2	6.9%	3.92
13 The Coca-Cola Company	1154	220	14.1%	4.7	5.7%	3.89

Source: Gartner (June 2010)

Figure 2. The AMR Supply Chain Top 25 for 2010 (continued)

Company	Peer Opinion ¹ (154 Voters) (25%)	AMR Opinion ¹ (27 Voters) (25%)	3-Year Weighted ROA ² (25%)	Inventory Turns ³ (15%)	3-Year Weighted Revenue Growth ⁴ (10%)	Composite Score ⁵
14 Johnson & Johnson	1260	221	13.7%	3.4	2.8%	3.83
15 Hewlett-Packard	1438	253	7.2%	13.8	5.2%	3.71
16 Nike	1141	179	12.9%	4.4	7.5%	3.61
17 Colgate-Palmolive	488	135	19.6%	5.2	5.9%	3.58
18 Intel	872	272	9.8%	5.5	-2.2%	3.23
19 Nokia	1151	133	8.1%	13.6	-5.0%	2.88
20 Tesco	846	150	5.4%	19.7	9.2%	2.78
21 Unilever	630	168	11.5%	5.4	-0.3%	2.76
22 Lockheed Martin	250	185	9.3%	20.4	4.6%	2.75
23 Inditex	84	95	16.2%	4.2	9.4%	2.72
24 Best Buy	1105	73	7.7%	5.8	11.2%	2.64
25 Schlumberger	427	104	13.5%	8.8	1.0%	2.63

Notes:

- 1. AMR Opinion and Peer Opinion:** Based on each panel's forced-rank ordering against the definition of "Demand-Driven Orchestrator"
- 2. ROA:** $((2009 \text{ net income} / 2009 \text{ total assets}) * 50\%) + ((2008 \text{ net income} / 2008 \text{ total assets}) * 30\%) + ((2007 \text{ net income} / 2007 \text{ total assets}) * 20\%)$
- 3. Inventory Turns:** 2009 cost of goods sold / 2009 quarterly average inventory
- 4. Revenue Growth:** $((\text{change in revenue } 2009-2008) * 50\%) + ((\text{change in revenue } 2008-2007) * 30\%) + ((\text{change in revenue } 2007-2006) * 20\%)$
- 5. Composite Score:** $(\text{Peer Opinion} * 25\%) + (\text{AMR Opinion} * 25\%) + (\text{ROA} * 25\%) + (\text{Inventory Turns} * 15\%) + (\text{Revenue Growth} * 10\%)$

2009 data used where available. Where unavailable, latest-available, full-year data used. All raw data normalized to a 10-point scale prior to composite calculation.

Source: Gartner (June 2010)

1.1 Inside the Numbers

It's a first — the Supply Chain Top 25 has a three-time No. 1 company: Apple. The digital-economy icon held the top spot again in 2010 after having been ranked No. 1 for the first time in 2008. Apple dominates because it consistently brings both operational and innovation excellence to bear in some of the most competitive markets in the world. Consider first the revolutionary success of the iPhone. Although still a relatively small share of the overall mobile devices market, it has transformed the industry. From a supply chain perspective, the company's ability to ramp

volumes both in hardware and software while redefining what a mobile telephone is supposed to be has been impressive. Unwilling to rest, Apple has continued to push innovation with its launch of the iPad, which is another new platform product for digital content and a further extension of the brand.

Apple has broken new ground in the area of transforming its supply chain into a value chain, starting with the consumer experience and designing its network to serve that master first and foremost. This means demonstrating some of the behaviors we look for in Top 25 companies, including embedded innovation, networked supply and demand shaping. It's also instructive that Apple, which most observers think of primarily as a design and software company, in reality has a vertically integrated value chain that reaches from logo-bearing, pure-play retail all the way back to superfast chipmaker Intrinsicity, which was recently acquired by Apple to "steal a march" on competitors looking to enhance the performance of mobile devices. Not shying away from any operational challenge, Apple's value chain controls its most strategic nodes all the way from silicon to synapse.

At No. 2, we have one of the most respected supply chain leaders in the world, Procter & Gamble. P&G has occupied a top-five spot for six consecutive years and still commands tremendous respect among its peers and our research team. As one of the pioneers of demand-driven principles in supply chain, the company remains at the forefront of areas like specialized production operations in emerging markets and commodity hedging upstream for key inputs.

P&G has established new leadership footholds in other areas, too, including its use of innovation networks to tap external expertise for at least 50% of its new product ideas. Perhaps most impressive is its relatively quiet but nonetheless thoughtful leadership in social and environmental responsibility. The company's recently released supplier sustainability scorecard is a model of practical but still ambitious target setting for a supply base that impacts many key environmental resources, including water, energy, emissions and waste.

Cisco Systems has climbed steadily in our rankings for five straight years, moving up two slots to No. 3 this year. Many areas of supply chain innovation have borne Cisco's mark, including supply chain risk management, multilevel demand-planning excellence and regionalized supply network architecture. The most prominent feature of Cisco's leadership, though, is probably its explicit championing of the term "value chain" as an organizational construct. By bringing together not only sourcing, production and logistics but also customer service, quality and new product launch as hard-line reporting functions, Cisco's Customer Value Chain Management organization may be a model for supply chain organizations of the future.

Bad economic times mean opportunity for discount retail giant Wal-Mart Stores, which rose three spots to No. 4. Building on a tradition of cost-focused supply chain innovation, the company's reputation among supply chain peers remains stellar, with only one organization (Apple) securing a higher peer-vote total in our analysis.

More impressive, perhaps, is the leadership Wal-Mart Stores is bringing to its supplier development efforts in emerging markets. Work in India to improve the operations of thousands of upstream suppliers seeks to achieve benefits for local economies, while diversifying the retailer's supply base to move away from potentially risky sources in China.

Dell (No. 5) remains a highly respected supply chain leader, securing the fourth highest peer-vote total in 2010. Once again the company's high inventory turns contributed to its strong composite score. Unfortunately, though, competitive challenges in the PC market still undermine Dell's ability to grow revenue and deliver strong profitability. But innovation is still alive as Dell takes a strategic shot at growth in the healthcare sector by targeting a service, software and hardware bundle for small to midsize doctors' offices looking to improve their operations with electronic health records (EHRs). The move makes sense, since EHR conceptually offers tremendous value

to the healthcare value chain, but is generally too expensive and complicated for a 10-physician practice to justify (this sounds a lot like what Michael Dell was thinking back in his dorm room).

At No. 6 we have PepsiCo, which continues its climb up the rankings. The supply chain community respects PepsiCo's traditional operational excellence. By driving a metrics-intensive supply chain management (SCM) function across its diverse consumer products (CP) businesses, the organization has established a tradition of continuous improvement from its plants upstream, all the way to a finely tuned, direct store delivery (DSD) network.

Two recent developments point to the future. One was last year's \$7.8 billion acquisition of two big bottlers, which brings critical supply chain infrastructure under direct control and may be part of a wider move toward the vertical integration we're seeing (see Apple, The Coca-Cola Company and Inditex). The second is an increasingly high-profile role being played by CEO Indra Nooyi on matters of social justice and consumer health. These initiatives appear to be more deeply embedded in daily operations than what's typical and may offer benefits in the future as emerging markets increasingly drive profit growth.

Electronics companies have always fared well in the Supply Chain Top 25, so, for this reason, Samsung's (No. 7) fourth straight appearance is no surprise. An established leader in the use of IT for essential processes such as sales and operations planning (S&OP) and demand modeling, Samsung's supply chain team persists in applying best practices to build market share and profits in notoriously competitive markets such as mobile devices, flat-panel televisions and memory chips. The company's recently announced plans to invest almost \$23 billion in production capacity and R&D shows it's confident in its ability to get to market quickly and cost effectively with product in these super-short life cycle industries. It also shows that vertical integration, which many observers think is passé in the high-tech industry, may be a smart strategy after all.

IBM (No. 8) has never failed to make our Supply Chain Top 25, and although its ranking dropped a few notches this year, both peer and AMR/Gartner voters still hold the computing giant in high esteem. Organizational innovation is where IBM has excelled as a supply chain leader over the years. Among its contributions to the discipline is a model of matrixed management that successfully taps corporate-level scale for sourcing, process enablement and talent development while leaving business-unit autonomy intact. Looking ahead to IBM's increasingly services- and software-intensive business profile, it appears as though some of these lessons will help maximize efficiencies in what's becoming a labor and intellectual property (IP) supply chain.

The next four companies were considered for the Supply Chain Top 25 for the first time this year. Ranked at No. 9, Research In Motion (RIM) not only broke onto the list, but it did so with financials that challenged even Apple in pure numbers dominance. In addition to a respectable 13.7 inventory turns for 2009, RIM pulled off a three-year weighted average ROA of 23.7%, which was the second highest of all companies considered. Equally impressive was its astonishing growth, which was also calculated as a three-year average, posting 62.4% in our analysis. Underneath these tremendous numbers is a supply chain organization that seems to have quickly learned from the best practices of others — using long-term, multitiered, collaborative relationships with bidirectional feedback to support its explosive growth — while never losing touch with the core customer value proposition of superior mobile communications for professional users. In case readers don't know what RIM delivers with its great supply chain, the flagship product has quickly become a cultural icon: the BlackBerry.

Another first-time Top 25 company made the list at No. 10: Amazon.com. In years past, this online-retailing pioneer was omitted because it was too small for inclusion in the Fortune Global 500. But in 2009, with the success of its Kindle e-book reader as well as continued growth organically and through acquisition (e.g., Zappos, for shoes and apparel), Amazon not only made the cut in terms of size, but it demonstrated the deepening vertical integration trend seen elsewhere among leaders. Amazon is pushing some critical frontiers in its value chain strategy,

tapping and shaping online demand as the iconic brand of consumer Internet retail and developing an increasingly full-service IP value chain, including e-books, cloud-based movie sales and third-party brand support.

McDonald's (No. 11) is another new name on our list, added this year in recognition of its essentially productized approach to the restaurant business, which we've traditionally excluded as pure service supply chain. Not only do McDonald's sourcing decisions impact upstream agricultural markets nearly as heavily as Mother Nature, but its promotional tie-ins, toy and packaging development, and complex logistics networks play huge roles downstream in the consumer value chain.

The interesting thing about McDonald's is what the company accomplishes along with its global expansion: economic development. McDonald's India spent six years developing local farmers' agricultural practices and building a reliable cold chain before opening its first store. Not only did this effort create wealth and transfer technology, but it also improved farm yields by 60% and cut chemical and water use by two-thirds.

No. 12 is yet another newcomer to the Top 25: Microsoft. Our analysis has always excluded software companies because of their lack of a traditional, physical product supply chain. For 2009, however, Microsoft's Xbox, peripherals and shrink-wrapped PC software businesses were deemed big enough to justify its inclusion.

In addition to delivering strong numbers financially, Microsoft's supply chain organization was shown solid respect by both AMR and peer voters. The most valuable lesson this new leader offers is the virtual nature of its organizational design and its approach to partnership. Microsoft's leadership has pulled top talent from many respected consumer and high-tech supply chain teams and defined a span of control that includes not only sourcing and delivery, but strategy, technology enablement and design collaboration.

The Coca-Cola Company again makes our list in the same spot as last year, No. 13. Coke's approach to supply chain is admirable in large part because the Atlanta beverage company owns the world's most valuable brand and, as such, it could easily identify itself primarily as a marketing company.

With Coca-Cola's acquisition of its biggest bottler, Coca-Cola Enterprises, the value chain concept appears to be taking serious root. The shift toward consciously developing a value chain strategy is no doubt driven in part by necessity, since the core carbonated drinks business continues to struggle with changing consumer tastes. Success in water, juices, food and acquired brands will depend on an agile value chain controlled by the business. Growth in emerging markets, which is a key to Coke's success, will also require a global supply chain strategy to cope with different infrastructure and consumer retail landscapes around the world.

Another traditional Top 25 name is back again this year in Johnson & Johnson, at No 14. Like Coca-Cola, the organization's self-image is defined by marketing or R&D more than operations, which makes its efforts to crystallize a global supply chain strategy especially impressive. As it engages with critical customers like CVS or large group purchasing organizations in the healthcare industry, Johnson & Johnson's supply chain strategy has become increasingly demand driven. The company also draws admiration for its efforts to improve the operational effectiveness of the wider healthcare value chain. This was recognized last November when a unique group of peer voters selected Johnson & Johnson No. 1 in AMR's first-ever Healthcare Top 25.

It's possible that no company on earth has undergone a more radical or successful supply chain overhaul than Hewlett-Packard (HP), which ranks No. 15 this year, up two spots from 2009. HP runs the world's largest high-tech supply chain today. Although it leverages enormous amounts of

third-party talent in relationships with EMS and original design manufacturer (ODM) partners such as Foxconn Technology Group, Flextronics and Quanta Computer, it operates dozens of its own plants, distribution centers and recycling facilities. This network has undergone a sweeping redesign in pursuit of cost savings and agility enhancements that allows HP to serve far-reaching global markets cost effectively and in massive volumes.

Looking ahead at keys to success for the next five years, HP also owns an inside track on three skill sets that will make a difference in the future. Sustainability, emerging markets and supply chain talent are areas in which HP has a 20-year (at least) leadership tradition. These three look ready to change the game for strategists, as supply chain's image as a cost center is replaced by a more holistic picture of the value chain.

The first apparel company ranked on our list, Nike (No. 16) is a lot more than a sports shoe. First and foremost, the company's brand represents a prominent example of IP embedded in physical product. From a supply chain perspective, its extraordinary grasp of what this means to operations is compelling — cost containment must always battle with speed, agility and precision for strategic pre-eminence. Nike's proven track record with environmental and social responsibility in the global supply chain is also noteworthy. Far from pursuing the issue symbolically, the company has been able to embed this discipline in all elements of its operations, from design through distribution.

Colgate-Palmolive climbed three spots to No. 17 in our 2010 ranking. Managing to deliver an outstanding three-year weighted ROA of 19.6% and solid growth (5.9% in a three-year weighted average) through a recession, the CP company has come out publicly in the last year to share some of what it has learned with the wider supply chain community.

Although not unique in its use of technology to enable great supply chain performance, Colgate-Palmolive has accomplished more with its ERP backbone than most. Key benefits of the systems in place include global visibility, consistent data standards and reliable transaction execution. Also interesting is Colgate-Palmolive's talent development processes, which offer an unusually rich and well-rounded training program for its supply chain professionals as they draw customer fulfillment demands back through operations all the way to sourcing.

The biggest jump was accomplished by Intel, which rose from No. 25 in 2009 all the way to No. 18 this year. Intel launched an extremely ambitious effort to remake itself as a customer-centric supply chain, and appears to be well on track to pursue vast new markets in embedded devices, which will be central to the "smart" infrastructure supporting next-generation energy, healthcare and production systems around the world. At the foundation of this new supply chain strategy is a companywide effort to cut cycle times by as much as half and accelerate planning in order to simultaneously double the rate at which customer requests can be met, while still dramatically reducing unit costs. For an asset-intensive business like Intel to double its customer responsiveness and lean its costs by such huge margins all at the same time is a testament to the potential of applying supply chain principles across the entire business rather than in functional silos. This is no easy feat for an engineering culture like Intel's, and it serves as an example for others battling culture in their change management efforts.

Once ranked No. 1 and a perennial leader in all disciplines of integrated supply chain management, Nokia comes in at No. 19. Challenged again in its core mobile devices business by a breakthrough product (in this case, the iPhone and other smartphone followers), the Finnish company has been set back a bit lately. But like in the past, when Nokia was surprised by Motorola's success with clamshell designs, there's every reason to expect a quick turnaround. Early indications are that cost-cutting measures have quickly improved profits and that market share in smartphones is being reclaimed.

At No. 20 is Tesco, the U.K.-based global grocer known for low prices, innovations like home delivery of Web orders and high-quality, private-label products. The global recession appears to have been good for Tesco, which was able to use its scale and skill in supply chain management to deeply cut costs and gain market share during the downturn. It was also one of the few grocers able to expand successfully internationally, with substantial success in Asia, and into nonfood retail, which provides a growth advantage over grocery.

Unilever (No. 21) is back on our list this year, offering supply chain strategists once again an example of growth and flexibility that's worthy of attention. By adjusting cost models and distribution strategies, Unilever has been able to successfully access fast-growing, emerging markets such as India and Africa. For CP companies challenged by flattening consumer spending in traditional markets like the United States and Europe, innovative approaches, including specialized packaging, simplified formulations and local sourcing, offer a promise of new growth.

The only aerospace company to make the Supply Chain Top 25 is Lockheed Martin (No. 22). As a prime contractor and system integrator, much of what drives the company's score is in the financial metrics, including a solid ROA figure of 9.3% and very high 20.4 inventory turns. Its support among peer voters, however, is low and nearly identical to that shown to aerospace rival Boeing, suggesting that practitioners are still not widely aware of how this engineering- and program-intensive sector is using supply chain disciplines to improve business.

For the first time ever, we have the pleasure of seeing Inditex (No. 23) on our list. The Spanish company is legendary among supply chain professionals for its integrated apparel manufacturer and retailer Zara, whose pioneering approach to product innovation is the prototype for rethinking an entire value chain to achieve breakthrough results. By designing and making its own line of garments domestically in Spain, Zara is able to get new items from concept to shelf in weeks when industry norms often exceed six months. The result is fewer sales on discount, more regular traffic through stores and lower prices for higher fashion. It's also possible that no single supply chain story has been retold more often than Zara's.

Another well-known retailer, Best Buy, returns to the list, this year at No. 24. Best Buy has long been admired for its store experience innovations and extensions of the business model into home service (Geek Squad) and private label (Insignia). Best Buy's supply chain leadership in supplier collaboration is less visible but probably more important. Close work with key brands like Samsung and Panasonic have demonstrated the benefits of shared demand visibility and forecasting processes.

At No. 25 is Schlumberger, whose aggressive development of a global supply chain organization was based initially in sourcing and procurement, but has built influence across the company and improved strategic thinking about the complex flows needed to support big projects, such as offshore oil exploration and production. The organization's commitment to the future is evident in its efforts to recruit and train top supply chain talent.

1.2 Honorable Mention

Despite our best efforts to identify the companies that demonstrate strong leadership in bringing demand-driven principles to the supply chain discipline, we always feel that certain exemplary organizations are missed. Among the supply chain organizations we felt deserved such mention are several who have perennially shown innovation and been willing to share with peers, including Kraft, Dow Chemical and General Mills. None of these three has yet made our list, but all are regarded as leaders by our analyst team.

Also worthy of honorable mention are several companies that have made our list in the past, but have fallen off primarily because of economic impacts on financial performance: Johnson Controls, Paccar and Walt Disney. These companies are recognized as best-in-class supply

chains within their domains. We're also surprised that other leading aerospace companies, most notably Boeing and Northrop Grumman, continue to be missed in this analysis, especially since we've seen significant progress in bringing supply chain disciplines to the industry.

Finally, we're aware of some excellent supply chain organizations in non-U.S. companies that miss the list partly because of the small percentage (20%) of voters based outside the United States. Among them are BASF, Carrefour, LG Electronics, Novartis and Seven & I Holdings. Last but not least, we regret to see voters generally fail to notice the leadership coming from contract manufacturing specialists whose entire business model is built on enabling demand-driven supply chains for others. Flextronics and Jabil Circuit fit this bill.

2.0 What Is Demand-Driven Excellence?

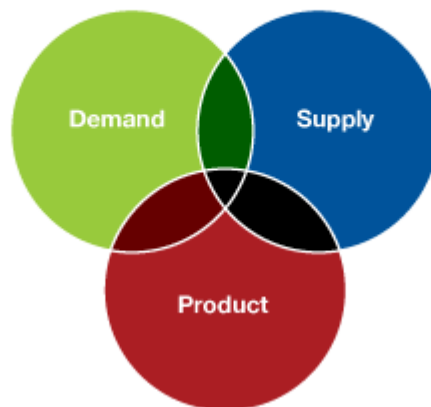
Throughout this report, we've been referring to the notion of being demand driven. We first started writing about demand-driven principles in 2003 and have since published hundreds of articles on the topic. Because it is so critical to the Top 25 analysis, here's a brief synopsis of what it means to have a demand-driven value chain.

Figure 3 captures the organizational ideal of demand-driven principles as applied to the global supply chain. This model has three overlapping areas of responsibility:

- Supply management — Manufacturing, logistics and sourcing
- Demand management — Marketing, sales and service
- Product management — R&D, engineering and product development

Figure 3. Demand-Driven Principles in Supply Chain

A system of technologies and processes that senses and responds to real-time demand signals across a supply network of customers, suppliers and employees.



Source: Gartner (June 2010)

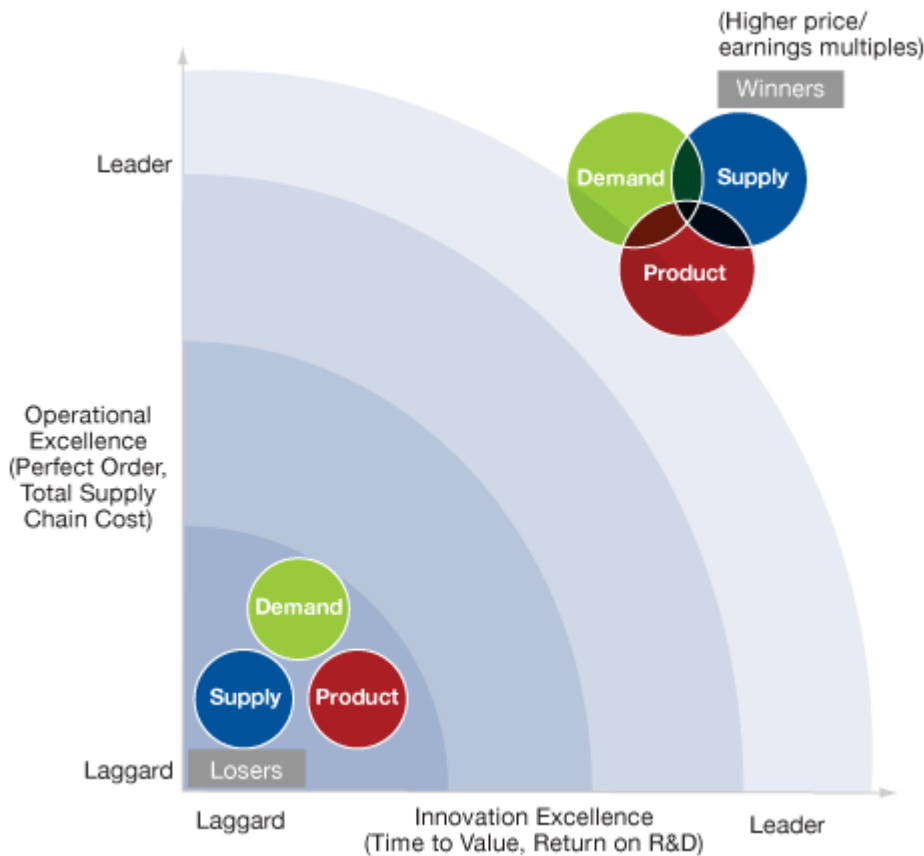
When these processes work together, the business can respond quickly and efficiently to opportunities arising from market or customer demand. Defining characteristics of supply chains built to this design include the ability to manage demand rather than just respond to it, a networked rather than linear approach to global supply and the ability to embed innovation in operations rather than keep it isolated in the laboratory.

3.0 Operational Excellence and Innovation Excellence

Two basic dimensions of measurement capture the totality of the best-in-class, demand-driven, global supply chain: operational excellence and innovation excellence. To measure operations, including delivering as promised to customers and keeping costs under control, we recommend a hierarchy of metrics, at the top of which are perfect order performance and total supply chain costs.

Of course, operational excellence has value only if customers want what's being made and shipped. To address this, we look at innovation excellence. Although far harder to measure reliably, this dimension also can be managed with a hierarchy of metrics, in this case topped by time to value and return on new product development and launch (NPDL). Companies that manage to balance leadership on both these dimensions over time not only satisfy their customers, but also earn better returns on capital invested in assets or R&D.

Figure 4. Operational Excellence and Innovation Excellence



Source: Gartner (June 2010)

4.0 Measuring Demand-Driven Excellence

4.1 The Metrics We Wish We Had

For the Top 25 ranking, our ideal would be to have metrics that perfectly describe the two basic dimensions of performance, operational and innovation excellence. These are the dimensions

that point meaningfully to the better value chain, identifying which business is faster, stronger and smarter. Betting on next year or next quarter is a matter of knowing who the better athlete is, not merely who won last time. Our premise is that the better athlete is more likely to win markets and profits in the future. Therefore, the companies able to demonstrate superior performance against these dimensions merit a higher share price multiple on a dollar of current earnings.

In our ongoing supply chain research, including detailed supply chain benchmarking studies of 70 companies, we have identified the metrics that map to these dimensions, which, if we had them, would clearly convey the organizations that have the healthiest value chains:

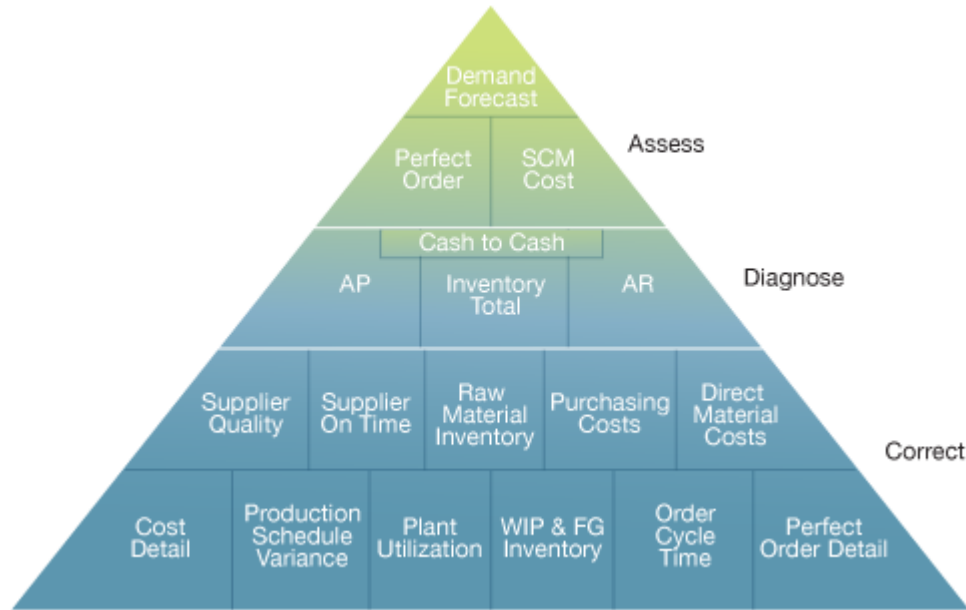
Figure 5. Metrics for Operational Excellence and Innovation Excellence

Performance Dimension	Key Metrics
Operational Excellence	Perfect Order Rate Total Supply Chain Costs
Innovation Excellence	Time to Value Return on New Product Launch

Source: Gartner (June 2010)

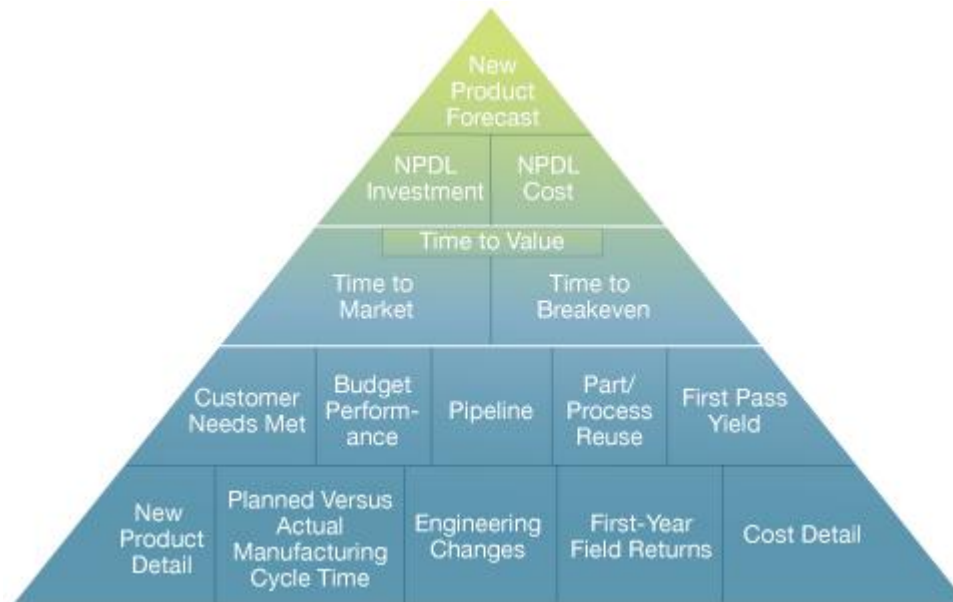
For each of these performance dimensions, we've published a full hierarchy of metrics that allows management to assess overall performance at the highest level, diagnose problems via process decomposition and make corrections at the tactical work level.

Figure 6. The Hierarchy of Supply Chain Metrics: Operational Excellence



Source: Gartner (June 2010)

Figure 7. The Hierarchy of Product Metrics: Innovation Excellence



Source: Gartner (June 2010)

However, from our work with companies and our benchmarking studies in the past, we're all too aware of how inaccessible this data is in most companies, particularly within a realistic time frame. Moreover, although some companies may have some of the data we seek, there are vast inconsistencies in how these metrics are calculated from company to company.

Therefore, for the Top 25 ranking, we look to publicly available, audited financial data to find the closest possible proxies. We know the limitations inherent in these metrics. Existing financial accounting principles were developed in the hard-asset, factory-intensive economy of the early 1900s. For example, the balance-sheet treatment of inventory as a valuable asset rings false for the many short-cycle businesses today that see inventory as more of a liability. Similarly, soft assets like brands and IP, which are essential to demand creation, are impossible for standard accounting to handle and are thus usually under-counted. Even income statements can obscure real costs with sneaky capitalization rules.

Because of these issues, our methodology is not limited to financial metrics. Instead, we see financials as one important component that provides a baseline, an anchor and an objective foundation on top of which we place the group intelligence of a vote, precisely because no combination of income statement or balance-sheet financial metrics will tell us which companies are furthest along toward the demand-driven ideal of supply chain excellence. For this reason, we look to craft a methodology that combines enough, but not too many, of the right metrics, both quantitative and qualitative, to achieve our goals.

5.0 Supply Chain Top 25 Methodology

The Supply Chain Top 25 ranking comprises two main components: financial and opinion. Public financial data provides a view into how companies have performed in the past, while the opinion component offers an eye to future potential and reflects future expected leadership, a crucial characteristic. These two components are combined into a total composite score.

We derive a master list of companies from a combination of sources, including the Fortune Global 500, the Fortune 1000 and the Forbes 2000. Our primary source is the Fortune Global 500, which

we then pare down to the manufacturing and retail sectors, thus eliminating certain industries, such as financial services and insurance (see Figure 8 for a full list of excluded industries). We then supplement this group with companies from the Fortune 1000 that fall between \$10 billion in revenue and the smallest revenue on the Global 500 list, as well as select companies from the Forbes 2000. Although we'd like to include all companies, we must keep the list to a size that's manageable from a voting perspective.

Figure 8. Industries Excluded From the Supply Chain Top 25

Airlines	Healthcare: Insurance and Managed Care	Railroads
Banks	Insurance	Shipping
Diversified Financials	Mail, Package and Freight Delivery	Telecommunications
Energy	Crude Oil Production	Temporary Help
Engineering/Construction	Petroleum Refining	Trading
Food Services	Pipelines	Utilities

Source: Gartner (June 2010)

Each year we examine the methodology used to develop the ranking, with two sometimes-conflicting goals in mind: consistency and improvement. We want to improve the methods and procedures we use, but, for the sake of consistency, do so in a way that builds on what we've done in previous years. To get input from the wider supply chain community, we published a research note again this year that detailed the changes we were considering (see "Changes to the 2010 Supply Chain Top 25 Methodology: Our Ideas"). We received helpful feedback that was incorporated into the changes we implemented, which are detailed below.

We continually consider new metrics that might give us additional or better insights into supply chain performance and reassess the weightings used to ensure a fair reflection of market and business realities. For example, we've investigated the possibility of using days sales outstanding (DSO) as a proxy for customer satisfaction, independent customer ratings for input on customer views, cash to cash for supply chain throughput rates and the ratio of inventory versus revenue change as a measure of how efficiently a company manages growth. Although our investigations revealed it wasn't feasible to apply these metrics within the quantitative methodology used for the Top 25, we did use them in additional analyses that we published throughout the year, and we will continue to do so this coming year.

For the 2010 ranking, we changed the relative weightings of the financial and opinion components. Previously, the financial component was weighted at 60% of the total score and the opinion component 40%. As the voting process matured, we considered shifting to a 50/50 weighting, particularly because, as we indicated earlier, the Top 25 isn't intended to be a financial ranking. This, combined with a reduction in the explanatory power of the financials because of the latest economic recession's impact, led us to make the change this year.

5.1 Financial Component

Similar to previous years, three financial metrics were used in the ranking:

- ROA — Net income/total assets
- Inventory turns — Cost of goods sold/inventory
- Revenue growth — Change in revenue from prior year

ROA was weighted 25%, inventory turns 15% and growth 10%. Inventory offers some indication of cost, and ROA provides a general proxy for overall operational efficiency and productivity. Revenue growth, while clearly reflecting myriad market and organizational factors, offers some clues to innovation. Financial data is taken primarily from each company's individual, publicly available financial statements.

The inventory weighting of 15% was a reduction from previous years (25%). We considered dropping it altogether. As much as inventory is a time-honored supply chain metric — one of the few "real" supply chain metrics on a company's balance sheet — there have always been issues with it, not the least of which is higher turns don't always point to the better supply chain. At the same time, it's a metric that's widely known and understood both in and outside the supply chain community. Despite the issues, it's not entirely invalid as an indicator, particularly if combined with other metrics. Therefore, we decided to leave it in, but reduce its weighting.

Last year, for the first time, we used a three-year weighted average for the ROA and revenue growth metrics and a one-year quarterly average for inventory. We continued that for the 2010 ranking. The yearly weightings are as follows: 50% for 2009, 30% for 2008 and 20% for 2007.

The shift to three-year averages was put in place to accomplish two goals. The first was to smooth the spikes and valleys in annual metrics, which are often not truly reflective of supply chain health, that result from events such as acquisitions or divestitures. It also accomplishes a second, equally important goal: to better capture the lag between when a supply chain initiative is put in place (e.g., a network redesign or a new demand planning and forecasting system) and when the impact can be expected to show up in financial statement metrics, such as ROA and growth.

Inventory, on the other hand, is a metric that's much closer to supply chain activity, and we expect it to reflect initiatives within the same year. The reason we moved to a quarterly average was to get a better picture of actual inventory holdings throughout the year, rather than the snapshot, end-of-year view provided on the balance sheet in a company's annual report.

5.2 Opinion Component

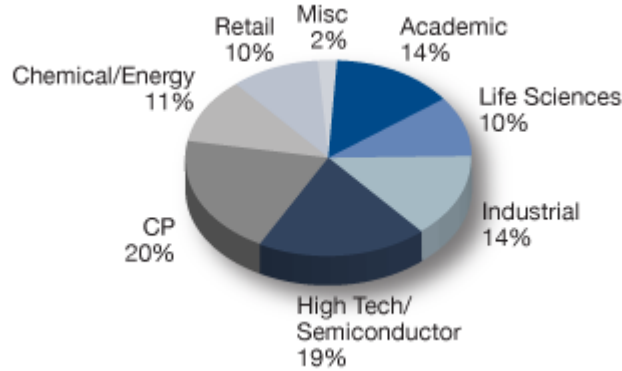
The opinion component of the ranking, comprising 50% of the total score this year, is designed to provide a forward-looking view that reflects the progress companies are making as they move toward the idealized demand-driven blueprint. It's made up of two components, each of which is equally weighted at 25%: an AMR/Gartner expert panel and a peer panel.

The goal of the peer panel is to draw on the extensive knowledge of the professionals that, as customers and/or suppliers, interact and have direct experience with the companies being ranked. Any supply chain professional working for a manufacturer or retailer is eligible to be on the panel, and only one panelist per company is accepted. Excluded from the panel are consultants, technology vendors and people who don't work in supply chain roles (e.g., PR, marketing and finance).

We accepted 193 applicants for the peer panel this year, of which 154 completed the voting process. Participants came from the most senior levels of the supply chain organization across a broad range of industries. There were 27 AMR/Gartner panelists across industry and functional specialties, each of whom drew on his or her primary field research and continuous work with companies.

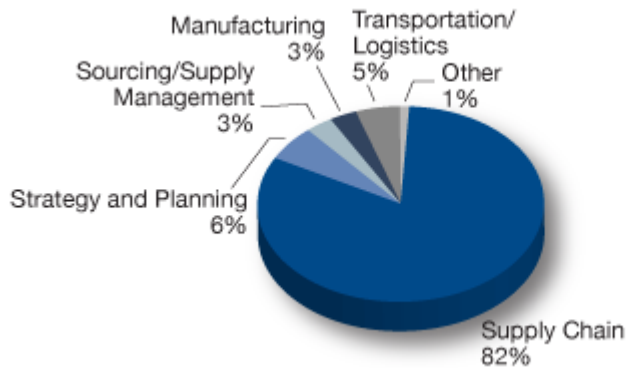
Organizations must receive votes from both panels to be included in the ranking. Therefore, a company that had a composite score fall within the Top 25 solely based on the financial metrics would not be included in the ranking.

Figure 9. Peer Opinion Panel Composition: Industry



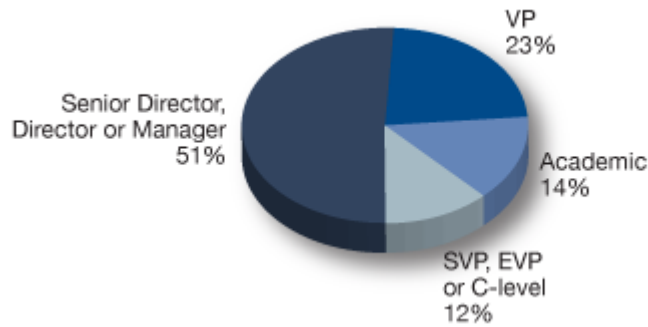
Source: Gartner (June 2010)

Figure 10. Peer Opinion Panel Composition: Function



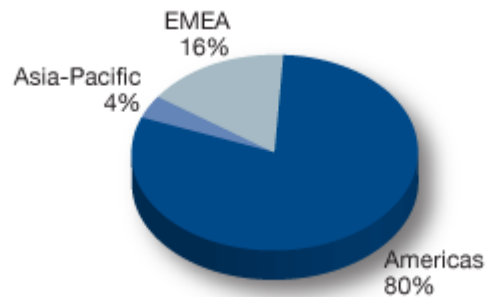
Source: Gartner (June 2010)

Figure 11. Peer Opinion Panel Composition: Role



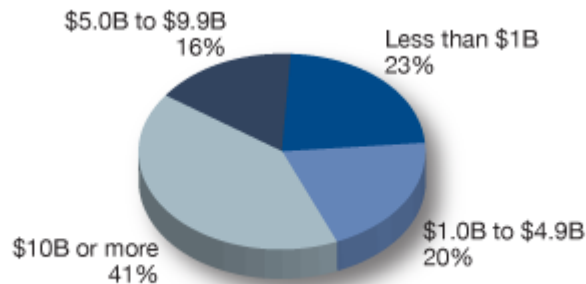
Source: Gartner (June 2010)

Figure 12. Peer Opinion Panel Composition: Region



Source: Gartner (June 2010)

Figure 13. Peer Opinion Panel Composition: Revenue



Source: Gartner (June 2010)

5.3 Polling Procedure

Peer panel polling was conducted in April 2010 via a Web-based, structured voting process identical to previous years. Panelists were taken through a four-page system to get to their final selection of leaders that came closest to the demand-driven ideal, as defined in AMR research reports. This ideal was repeated in the instructions on the voting website for the convenience of the voters.

Here's a breakdown of the four-page system:

- The first page provided instructions and a description of the demand-driven ideal.

- The second page asked for some demographic information.
- The third page provided panelists with a complete list of the companies to be considered. We asked them to choose 30 to 50 that, in their opinion, most closely fit the ideal.
- After the subset of leaders was chosen, the form refreshed, bringing just those chosen companies to a list. Panelists were then asked to force-rank the companies from No. 1 to No. 25, with No. 1 being the company most closely fitting the ideal.

Individual votes were tallied across the entire panel, with 25 points earned for a No. 1 ranking, 24 points for a No. 2 ranking, and so on. The AMR/Gartner panel and the peer panel used the exact same polling procedure.

By definition, each person's expertise is deep in some areas and limited in others. Despite that, panelists weren't expected to conduct external research to place their votes. The polling system is designed to accommodate differences in knowledge, relying on what author James Surowiecki calls the "wisdom of crowds" to provide the mechanism that taps into each person's core kernel of knowledge and aggregates it into a larger whole.

5.4 Composite Score

All this information — that is, the three financials and two opinion votes — is normalized onto a 10-point scale and then aggregated using the aforementioned weighting into a total composite score. The composite scores are then sorted in descending order to arrive at the final Top 25 ranking.

6.0 Ongoing Examination of the Methodology

As noted above, we continually examine the methodology in order to improve it (see "Changes to the 2010 Supply Chain Top 25 Methodology: Our Ideas"). We actively seek feedback from the wider supply chain community, seeing ourselves as the stewards of the ranking for the broader community. Indeed, this goes to the very heart of what we see as the purpose of the Top 25: It is intended to be a lightning rod and foundation for vigorous debate about what constitutes leadership and supply chain excellence. Against this goal, it has been enormously successful.

At the same time, we continually look for ways to mitigate any issues with the methodology and enhance the explanatory power, applicability and extensibility of the overall ranking. The impact of brand recognition on the vote, industry variations in inventory and inequalities between more versus less asset-intensive industries are all challenges with which we grapple. These issues are multifaceted, and by analyzing them, we've been able to make incremental changes that have allowed us to painstakingly chip away at some of the problems, while maintaining consistency from year to year at the same time.

6.1 Asset-Intensive Industries

Consider the asset-intensive issue, for example. Companies that are in more asset-intensive industries — think metals, chemicals or mining — have pointed out that because they have to make large investments in complex, long-life equipment, they don't have as much flexibility as the less asset-intensive companies to respond to major market changes. Presumably this would show up in the ROA metric, with the idea that the denominator (total assets) remains inflexible, even while the numerator (net income) fluctuates with market cycles.

Moving to a three-year weighted average for ROA (rather than an annual number) helped smooth, but not eliminate, some of the differences that arise from varying market cycles. Plus, an

analysis of median ROA performance by industry revealed there are actually more differences by company than industry, a finding that held true on the inventory metric as well. The three-year weighted average ROA among the A&D companies, for example, ranged from 0.5% to 9.7%, and similar, if not wider, ranges existed for the other groups as well.

This isn't to say we won't continue to work at this issue. One possibility we've considered is to move to five- or 10-year averages just for the asset-intensive industries. But it's important to remember that, regardless of the extent to which we're able to level the playing field, it eventually comes down to the ability of each company to differentiate itself. The companies that figure out how to better leverage their assets through a tighter and faster connection between supply, demand and product are the winners.

6.2 Brand Recognition

The impact of brand recognition and the vote itself are issues we continue to address. People have noted many of the companies on the list have strong name recognition, which gives them an advantage in the voting. Conversely, companies that are further back in the value chain — in the chemical, mining or paper industries, for example — are at a disadvantage in the voting because they're not as well known.

We have proposed and tested numerous possible changes to address this issue. For example, using 2008's data set in 2009, we tested the concept of affinity groups. We split the peer voters and the companies being voted on into industrial versus consumer-focused groups, and weighted a company's affinity group vote more heavily than the nonaffinity group vote. What we found is that the industrial companies still received fewer votes than the consumer companies, even from voters in their own affinity group. We had assumed voters would be more likely to vote for companies closer to their own industries because they would know more about them, but it turned out this wasn't the case.

We've tried other variations on this theme, none of which has given us the impact we're looking for so far. New possibilities we're considering include providing more structure in the voting parameters and extending the Top 25 ranking to make it industry specific. We're also looking for ways to better connect the improvements a company makes to its supply chain capabilities and its ability to rise in the ranking.

7.0 Looking Ahead

We published the first Healthcare Top 25 and began designing a Sustainability Top 25 in 2009. In 2010 and beyond, we expect to continue on this trajectory. Some of the possibilities we're looking at include industry-specific rankings, regional rankings for Asia/Pacific and/or Europe and a midmarket ranking to bring in companies that don't meet the size requirements for the larger Top 25.

AMR Research, now part of Gartner, remains committed to pushing the boundaries of supply chain excellence. We see our role as a driver and facilitator of change, as a platform for informed and provocative debate and as a vehicle to raise awareness of the importance of supply chain in creating value for companies. The Supply Chain Top 25 has proven to be a very successful spark to the conversation. With references on hundreds of websites and translations into at least 20 languages, we have also reached a wider audience. We're excited about the future possibilities and look forward to continuing the dialogue.

RECOMMENDED READING

"Supply Chain Top 25: Connecting Supply Chain and Financial Performance"

"The AMR Research Healthcare Top 25 for 2009"

"The Hierarchy of Supply Chain Metrics: Diagnosing Your Supply Chain Health"

"Changes to the 2010 Supply Chain Top 25 Methodology: Our Ideas"

"The 2009 AMR Top 25: A Cash-to-Cash View"

"The AMR Research Supply Chain Top 25: How Do They Stack Up on Efficient Growth?"

"Changes to the 2010 Supply Chain Top 25 Methodology: Our Ideas"

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