

Supply Chain Talent: State of the Discipline

by David Aquino and Lucie Draper

AMR Research, in conjunction with a subgroup of the Supply Chain Council, has surveyed almost 200 organizations to assess the state of the supply chain management discipline, identify key requirements to support a demand-driven curriculum, and construct the first functional talent attribute model, which will serve to align industry and academia in generating standardized and more universal supply chain programs.

Acronyms and Initialisms

DDSN Demand-driven supply network

R&D Research and development

NPDL New product development and launch

SCOR Supply Chain Operations Reference model

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198 organizations surveyed against AMR Research's Supply Chain Talent Attribute Model displayed enormous span-of-control diversity, which has hindered the definition and establishment of a common supply chain professional curriculum—until now.

The
Bottom
Line

Executive Summary

"I don't think enough people see supply chain talent in the same light as some of the other risk management issues. I am not worried about the organization farming me out to another country, but there is significant risk in not having a sufficient experience base to hire and support our business objectives."—Large consumer products executive

Supply chain excellence is a competitive differentiator across industries. Analysis of our Supply Chain Top 25 shows that an investment in these companies yielded an average return of 17.89% in 2007 compared with returns of 6.43% for the Dow Jones Industrial Average and 3.53% for the S&P 500.

In other words, if making more money is in your interest, then supply chain management expertise matters. A growing number of companies have recognized the need to develop this expertise. However, companies face a giant obstacle to achieving this goal: the shortage of trained supply chain management professionals at all levels. The fast evolution of this discipline from its logistics heritage, an ever-increasing scope of responsibility, and a perceived insurmountable diversity of span of control has hindered the establishment of a more standardized university curriculum.

Recognizing the urgency of this problem, **The Global Supply Chain Professional Development Committee**, a sub-team within the **Supply Chain Council** that includes industry leaders like **Procter & Gamble**, **Intel**, **IBM**, and **Boeing**, commissioned AMR Research late in 2007 to study supply chain talent management. Over the last five months, AMR Research interacted with and surveyed 198 organizations spanning 15 industries. Respondents were at the upper levels of their organizations, with 76% at the director level or above.

After combing through the mass of data the study yielded, five conclusions are clear:

- **No two supply chains are alike.** Very few companies define the supply chain in the same way. Of the supply chain leaders with which we spoke, almost all had different spans of control. This contributes significantly to a lack of clear priorities for standards and for consistent curriculum development at universities.
- **Leaders view supply chain management as a business discipline.** Overall, supply chain management is still very engineering centric. Few companies include manufacturing and new product development within the definition and span of control of supply chain, which is a differentiator among leading companies. The dearth of companies with this view also makes clarity of priorities a challenge.
- **Globalization has created urgency.** A general flattening and global broadening of supply chain organizations has boosted the need for a more extensive set of complex skills and competencies within company ranks. In addition, a trend toward a more centralized supply chain structure has heightened the need for broader skillsets and faster ramp-up time.
- **A common supply chain talent model is the foundation for improvement.** For supply chain management professional development to evolve into a more universal body of capabilities, industries and academia need to adopt a shared, modern, comprehensive model that incorporates the growing depth and scope of the discipline. To this end, AMR Research has developed and tested a model through this research.
- **Universities have an opportunity to take a leadership role.** Schools can lead the way in providing more universal supply chain management skillsets. Truly comprehensive programs, covering the full talent attribute model, would gain strong support from the industry. This partnership model, with industry providing access for students to gain real-world experience, is a starting point for reducing the talent gap.

Clearly it is both critically important and not at all impossible to have candid discussions about moving supply chain organizations from cobbled-together activities to a part of a more integrated, strategic discipline. The framework provided will facilitate these discussions as well as contribute to the construction of the necessary curriculum that will support all organizations along their evolution continuum.

All of the data from this research is provided in the Appendix to this Report.

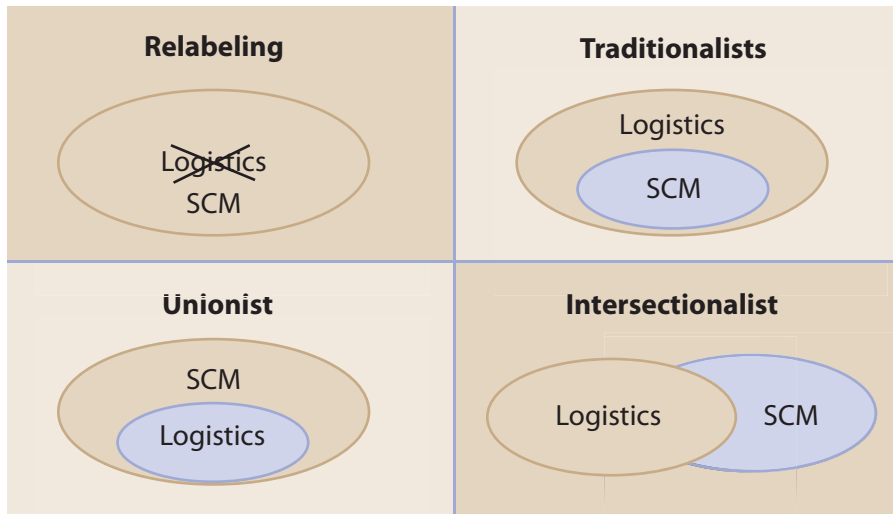
No two supply chains are alike

“Global supply chain management shifts the balance of power in a significant way in an organization and changes the skills that will succeed in a leadership role within an organization. Supply chain leaders are no longer the experts in a functional area but rather a discipline with a much broader expanse of knowledge”
—Global life sciences executive

As the supply chain management discipline has expanded from a base of logistics, compelling recent research from the *Journal of Business Logistics* reinforces the fact that many organizations struggle to get senior management’s attention about the importance of supply chain management. Further, they are saddled with the challenge of changing or operating within a narrow scope of responsibility that differs company to company.

In many cases, companies have just relabeled or minimized the organization or simply maintained functional separation. These different semantic approaches perpetuate the inability of the industry to properly define the skillsets necessary to meet business objectives. The result? Developing a supply chain management organization is an exercise in complexity, confusion, and frustration.

Figure 1: Example of the organizational struggle



Source: *Journal of Business Logistics*

Supply chain organizations are held accountable for introducing large numbers of new products, identifying opportunities to differentiate services, and implementing technology, oftentimes without a requisite span of control. Many supply chain leaders in our study expressed frustration with the difficulty and lack of interest their senior executives exhibit regarding supply chain management and the constant battles waged under legacy fiefdoms in functional areas.

Further, the fact that many supply chain structures have evolved from logistics or engineering has created an inherent predisposition to hire those same skills, which has generated inbreeding. For many supply chain executives, the reality makes it difficult to envision a truly synchronized, integrated supply chain environment that includes responsibility for manufacturing or new product development and launch (NPDL).

Leaders view supply chain management as a business discipline

“I don’t want to be viewed as whining, but quite simply, the sex appeal is in the product discovery, not in making ‘sausages.’ Therefore to say that R&D and supply chain is well organized, development has to be seamless. At the right level, supply chain executives can help the process move at greater velocity.”—Consumer products and life sciences executive

“Most of our senior staff are engineers, and thus the focus is generating intellectual property, but the commercialization and creation of revenue is in fact driven by supply chain management.”—High-tech executive

The best-run companies tend to view supply chain management not as a necessary evil, but as a business-oriented discipline that can be used to increase revenue and profit. “What makes our supply chain manageable is that we are one organization—engineering folks and logistics and planning folks,” one consumer products executive told us, “with accountability for working back from the customer experience.”

Leading supply chain organizations also educate their extended partners fully about their value, so capabilities can be viewed as profit drivers rather than demands from a transaction-driven group. “We are different in that the supply chain is not pitted against the business, service-oriented versus subservient, but supportive,” said one executive from a high-tech organization.

Leading supply chain organizations laughed at the question of whether NPDL should under its purview because its answer seems so obvious: “A lack of competitiveness will kill you,” one consumer products executive told us. “Innovation cycles have ramped up and the lifecycle of products has gone down ... you do not have dwell time in the system to diagnose root cause and deliver alternate plans!”

It is clear that supply chain organizations need to fight for more clearly integrated spans of control to include NPDL, technology enablement, and make processes.

Globalization has created urgency

“Most of our growth is in Asia and India, and the schools are not adequate. They are not providing specialties that are meeting our specific needs.”

—Semiconductor executive

“We are running a 24x7 operation. Do we have the right skills in the right geographies, and are we training them correctly?”—High-tech executive

Many organizations in our study have expanded substantially internationally, to the point that the majority of annual revenue comes through foreign channels. However, companies cannot successfully source their supply chain talent requirements solely through expatriate initiatives. There are concerns about resource stability and the value of employees understanding country-level idiosyncrasies, which can only be quelled by building sustainable, local talent. Therefore, the industry needs aligned local programs that can develop adequate levels of talent.

Progressive organizations, realizing the developing need early, began pushing to clarify the organizational structure, which includes a regional focus but is globally managed, and the key talent competencies required, which includes foundational skills including language courses, technology programs, and even manufacturing improvement skills like lean. From this perspective, they built relationships and, in many cases, constructed curricula with universities in important countries, such as China and Brazil.

The recognition that supply chain management is a key competitive advantage from a global frame exacerbates legacy risk once companies begin combining all of their developing challenges, including security, environmental requirements, and regional variations. “The failure rate and the risk factors are much higher than before—globalization, exogenous events, port closures, strikes, and near meltdowns come to mind,” said one global supply chain strategy director. The magnitude of growth and importance derived from globalization will create disproportionate risk if there is not a concerted effort by industry consortia and academia to build scalable supply chain management programs.

Organizational flattening

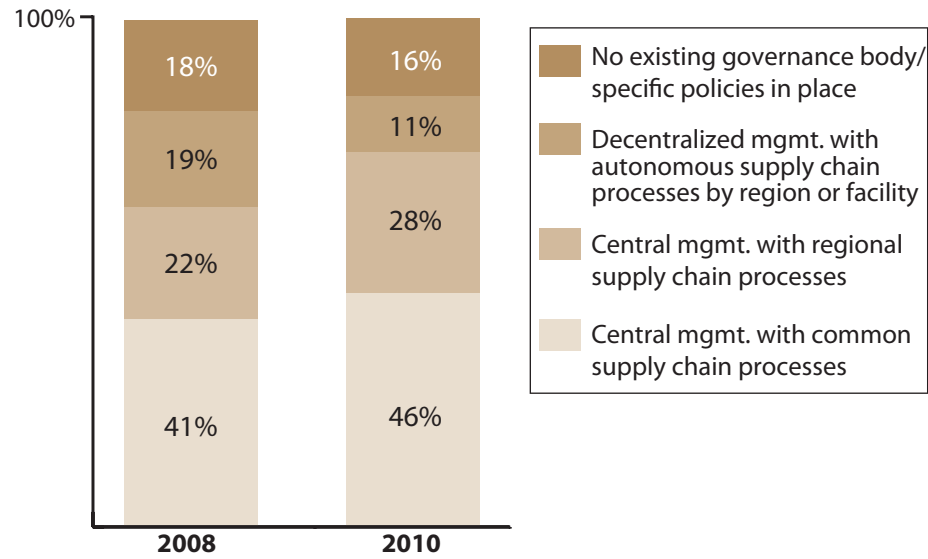
“While we are a commercial-driven company, our supply chain strategy has been boiled down to the following: eliminate the suboptimization that has occurred over the last 120 years and create a lightning rod for unique efficiency.”—Life sciences and consumer products executive

“A push for productivity has removed the slack of extra resources that could have been employed to support this process: zero dwell in innovation, zero capacity in your organizational capability creates risk.”—Consumer products executive

Our research shows organizations tending to increase the level of centralization within their respective supply chains. Centralization is being guided by leaders that understand effectively supporting global, complex organizations requires a balance of more centralized supply chain strategy coupled with local execution. It is also clear that less complex organizations anticipate benefits such as better alignment, training, and execution through becoming more centralized

There is a downside. The impact of flattening the organization means much less opportunity for lower level employees to specialize as well as vastly less time for an organization to train and develop talent. Being aggressive about managing this process is important. HR personnel realize that with greater pressure on younger employees to deliver meaningful performance comes additional concerns about longevity for older employees. One HR VP of supply chain told us, “The more right-sizing that occurs within an organization, the greater the concern employees and recruits have about growth and development.”

Figure 2: Move to centralize



Source: AMR Research, 2008

Follow the leaders

Advanced supply chain organizations see true competitive advantage in not only expanding the scope of responsibility, but also building strategic leadership that has a seat at the table of the CEO. “Our supply chain leaders report to the president,” notes one supply chain executive from a consumer products organization. “Our board is more interested and expects to be trained in the functions that are driving success of the business.”

While the benefits of centralization beyond the increased visibility and authority are varied, organizations find that they are able to balance strategic initiatives versus regional nuances. Acquisitions can either be quickly integrated into the existing business or kept independent but retrained on clear operating philosophies. Finally, building the right mix of competencies also reduces the redundancy and inefficiency that plagues many global, divisional-oriented businesses, which hurt operating performance.

A common supply chain talent attribute model is the foundation for improvement

The challenges supply chain leaders face with globalization increases the scope of responsibility, and the move toward centralization makes it difficult to effectively articulate talent development needs internally and externally. The establishment of a supply chain talent model would simultaneously assist in identifying major functional areas of responsibility, highlighting the gaps that require review, and beginning the process of formulating an appropriate, universal curriculum.

For supply chain management professional development to evolve into a more universal body of capabilities, industry needs a modern, comprehensive model that incorporates the growing depth and scope of the discipline. To this end, we have built and tested the AMR Research Supply Chain Talent Attribute Model, which comprises 11 stations:

- **Established stations**—The model features major functional stations— plan, source, make, and deliver—as well as established functional attributes within each station.
- **New stations**—The model offers a place for new elements, which reflect the expanded responsibility of supply chain: NPDL, post-sales support, customer management, strategy and change management, performance measurement and analytics, technology enablement, and governance.

Station

A major functional area covering a span of responsibility within the supply chain

Attribute

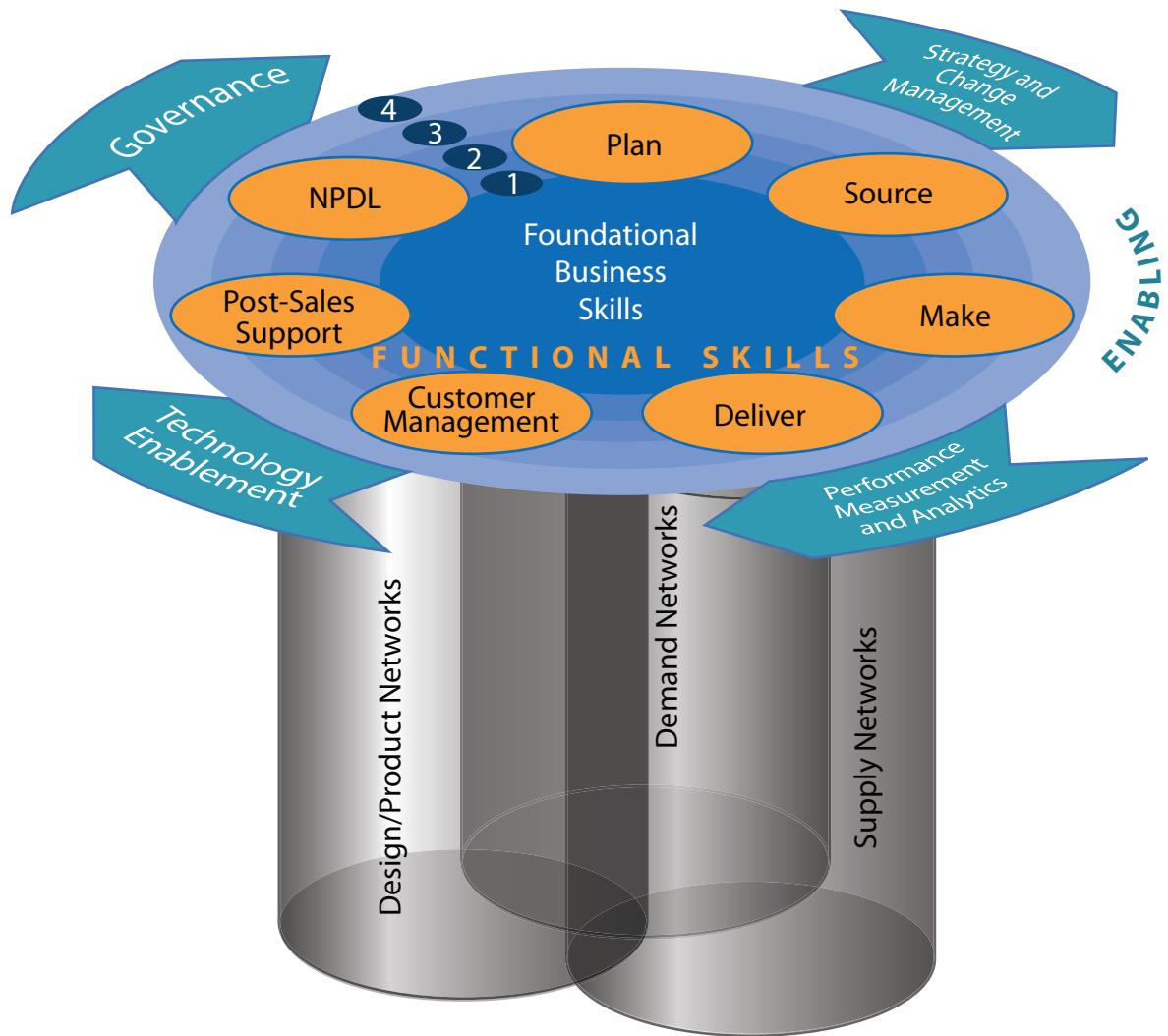
An element within a station that represents a section of learning necessary to become proficient within a station

These elements are built upon a multilevel foundation:

- **AMR Research’s demand-driven supply network (DDSN) model**—The DDSN model integrates design, product, and supply networks.
- **Foundational business skills**—The model includes basic skills not directly related to the supply chain discipline.
- **SCOR model elements**—The SCOR model is an accepted base of the internal elements of a defined supply chain.

The talent model can engender discussions on the appropriate scope of supply chain responsibility as well as what should be contained in a more standardized curriculum. The industry needs to carefully evaluate which elements of the 11 stations should be under their responsibility as part of working with academia toward constructing a more universal supply chain curriculum.

Figure 3: AMR Research Supply Chain Talent Attribute Model

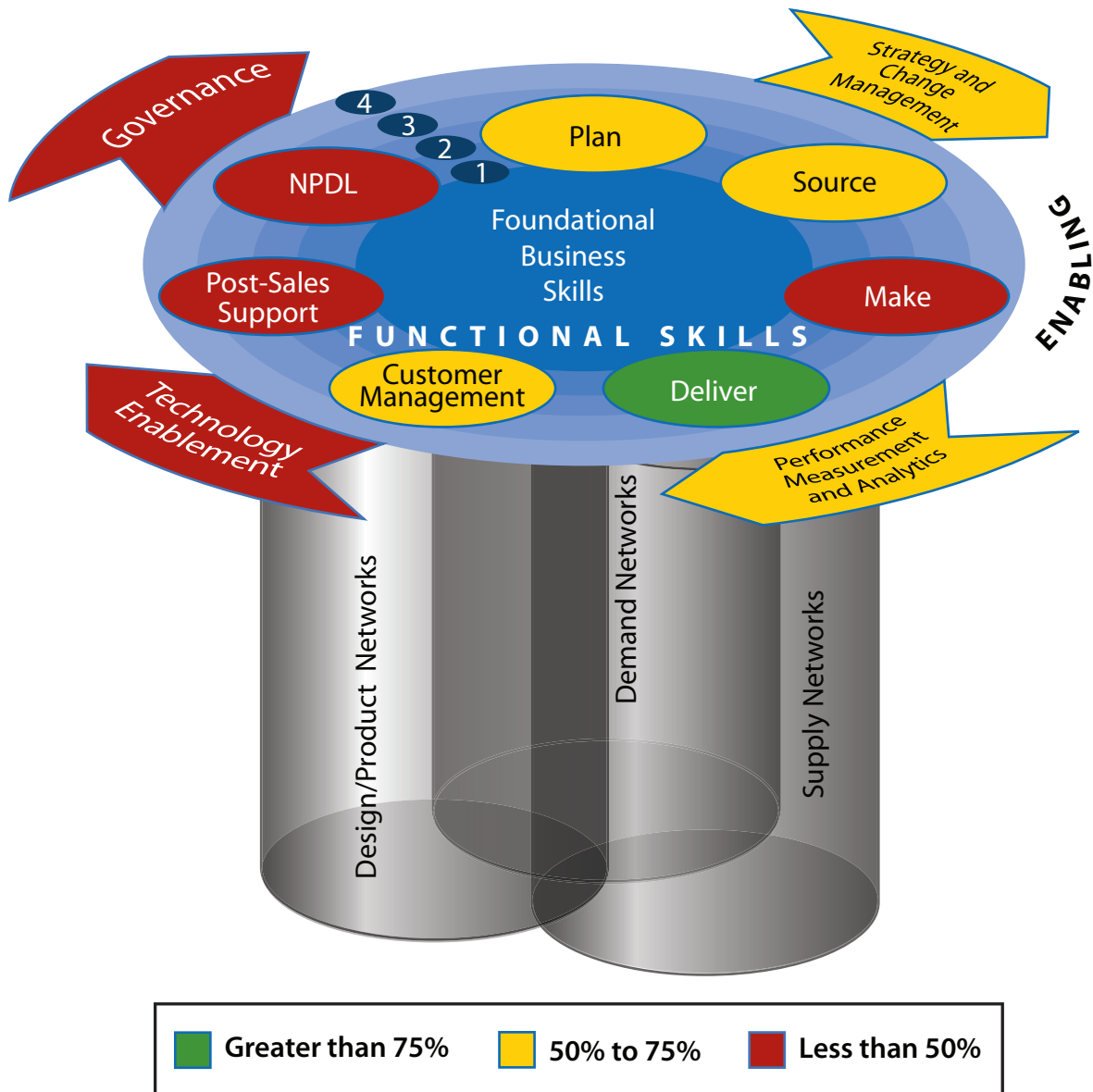


Source: AMR Research, 2008

Predominant spans of control

Again, the diversity of spans of control was a surprise from our study, in that we anticipated a bit more uniformity, or at least a more direct functional predisposition of focus. Our research finds enormous diversity in the typical span of control given our model design. The 198 respondents reported 122 unique spans of control. A typical span of control, which would be reflective of an early-stage supply chain organization, is responsible for deliver processes, and to a lesser extent includes plan, source, and customer management activities.

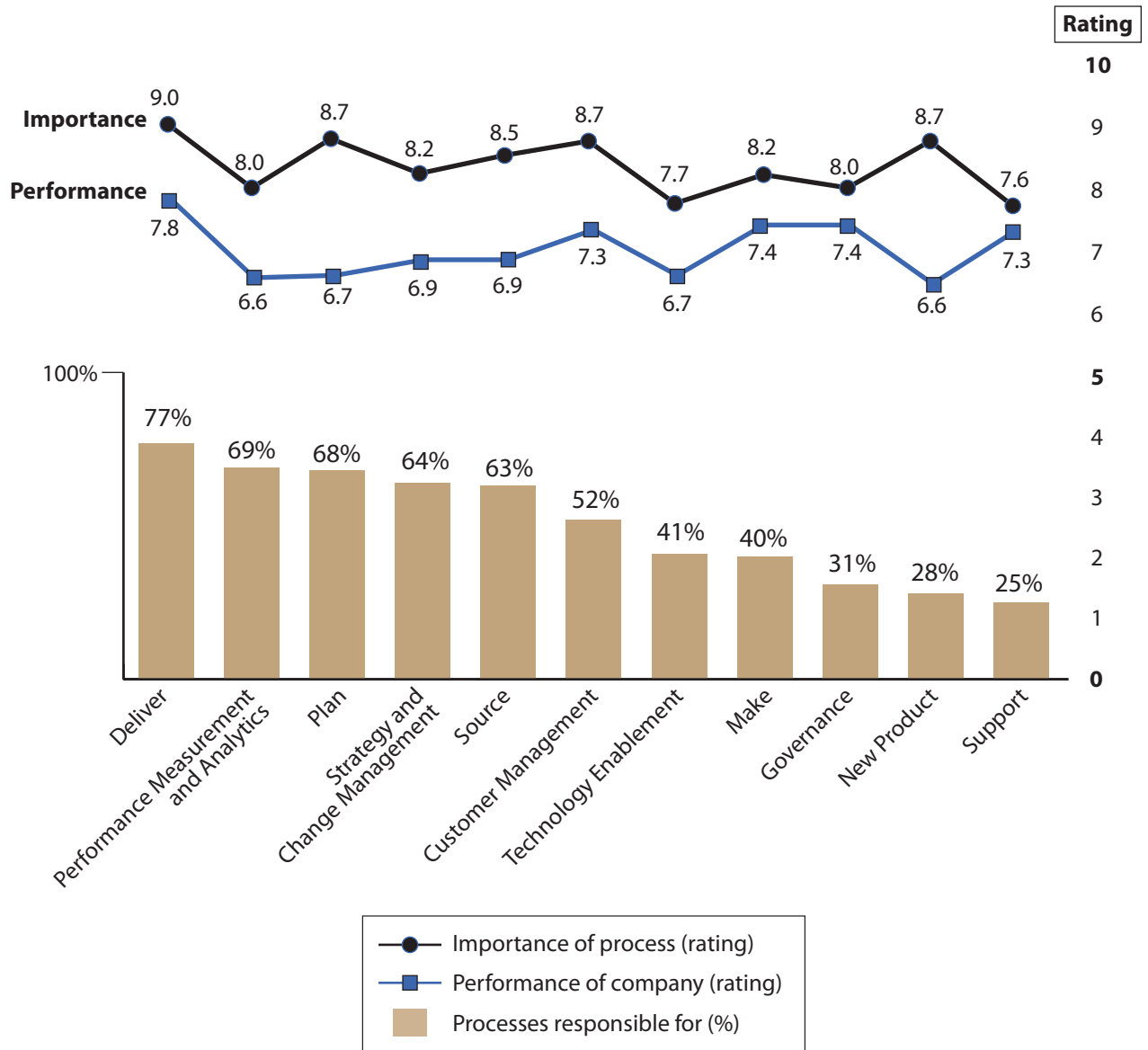
Figure 4: Supply chain talent attributes—predominate span of control



Source: AMR Research, 2008

In the enabling activities, a greater-than-average percentage owns strategy and change management as well as performance measurement and analytics, but is missing governance and technology enablement. The model and testing highlighted the struggle that supply chain executives currently have with the gaps in authority but maintenance of responsibility that currently exists in many organizations. At minimum, the confusion or frustration that exists in operating within or between functional fiefdoms may explain unnecessary complexity as well as subpar performance.

Figure 5: Key span of control gaps



Source: AMR Research, 2008

Universities have an opportunity to take a leadership role

“A good deal of professional and academic societies still want to live inside the four walls of an organization when it is an outside-the-four-walls business.”

—Electronics manufacturing executive

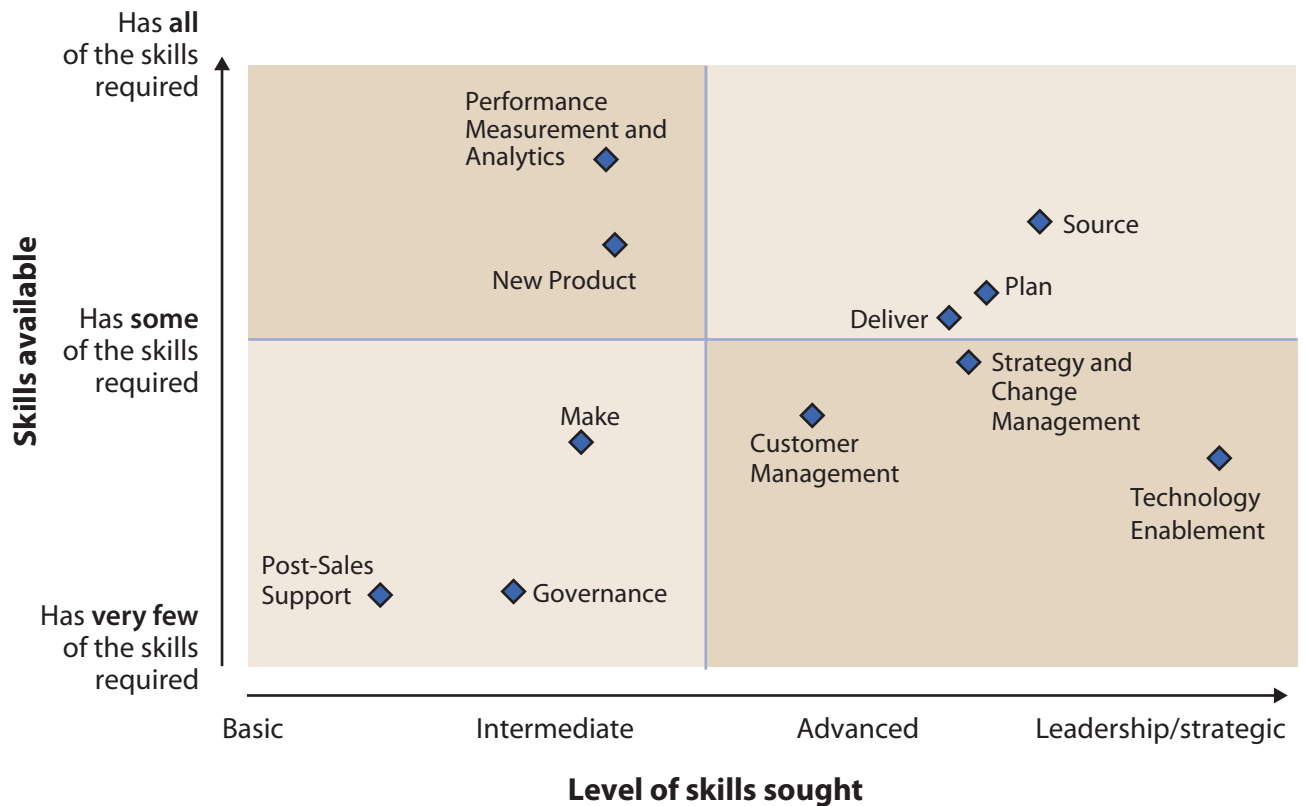
Much like the industry challenge AMR Research is witnessing as we develop and propagate the need to be demand driven, academia must push to extend its curriculum and training development beyond the current view of supply chain. Industry leaders spoke passionately about the need to partner with academia to develop a universal curriculum based on the intellectual property that is being developed at leading universities.

This is a big goal. Work needs to be done to build the necessary bridges that will ensure the building of comprehensive programs that reduce the time necessary to develop attribute proficiency and reduce the necessity for industry leaders to directly fund, support, and even provide teachers to universities.

When looking at possible gaps in specific skills needed against our model, several stand out:

- Plan, deliver, and source functions are mature, so industry needs more people with advanced skills.
- Make, post-sales support, and governance are in dire need of people with basic skills, but recruits are deficient.
- Customer management, strategy and change management, and technology enablement require advanced skills, but there are few recruits with these capabilities.

Figure 6: Supply chain levels of competency—priorities versus availability



Source: AMR Research, 2008

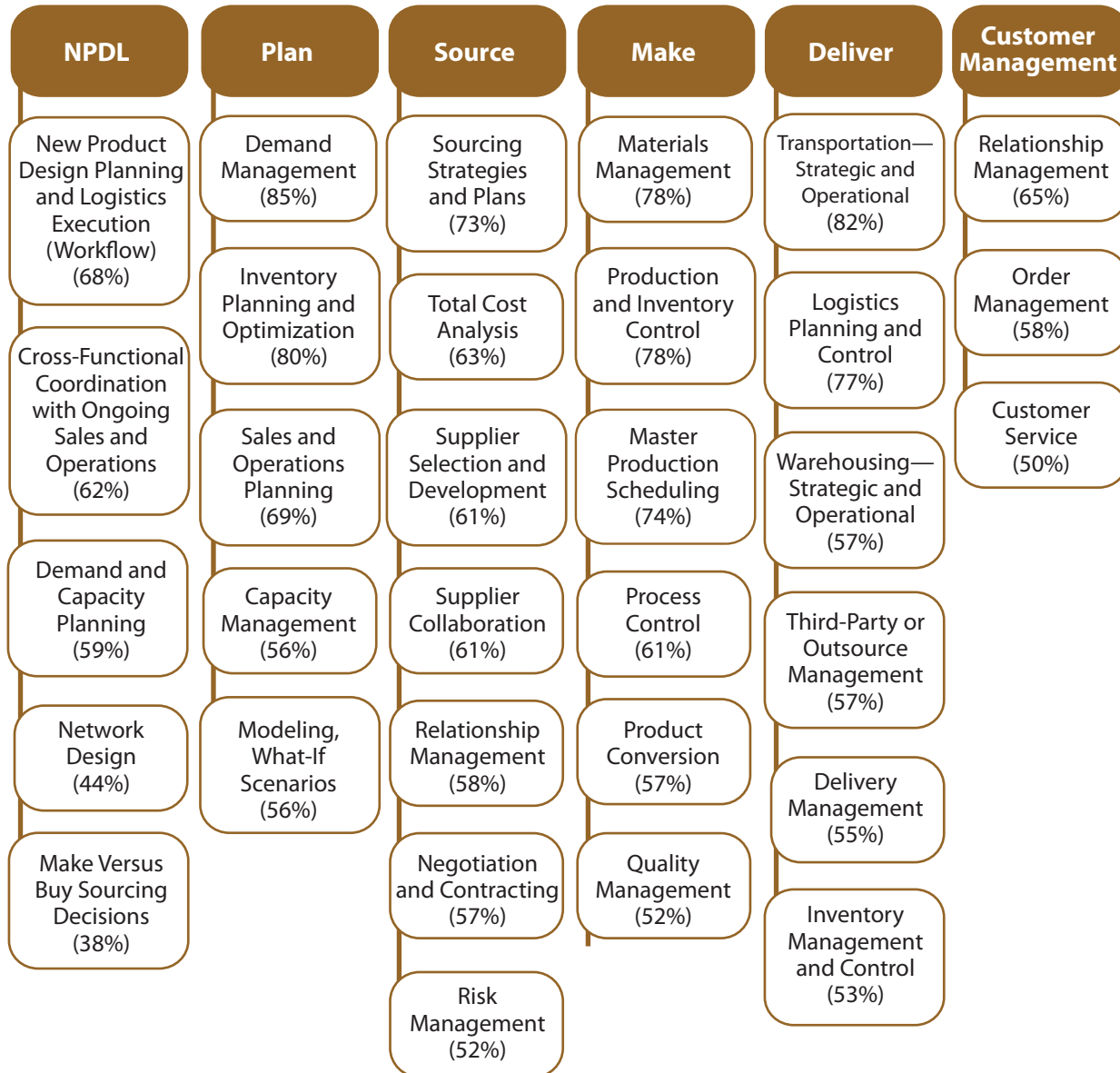
While universities are providing some of the skills, organizations are crying out for a greater number of trained supply chain generalists who eventually can become more specialized as needed. It is important to establish the interdependencies within supply chain’s functional stations, especially given the growing complexity and breadth of responsibility. University supply chain programs that view an individual station not as an end function, but rather as an interdependent element, will drive the higher level understanding that industry craves.

Specifically, leaders across industries would like to see candidates trained by universities that are better able to “connect the dots,” “acquire the leadership skills” that will facilitate the burgeoning global and virtual management world, and “balance specific IT skills with business acumen.”

Key elements of the curriculum; direct work experience leads the way

As part of our survey, we asked respondents to evaluate priorities among specific attributes within each major supply chain station. The results, which provide a look across the spectrum of responsibility, offer the starting point of a detailed curriculum that can be formally taught with the intent of educating a broad base of supply chain professionals.

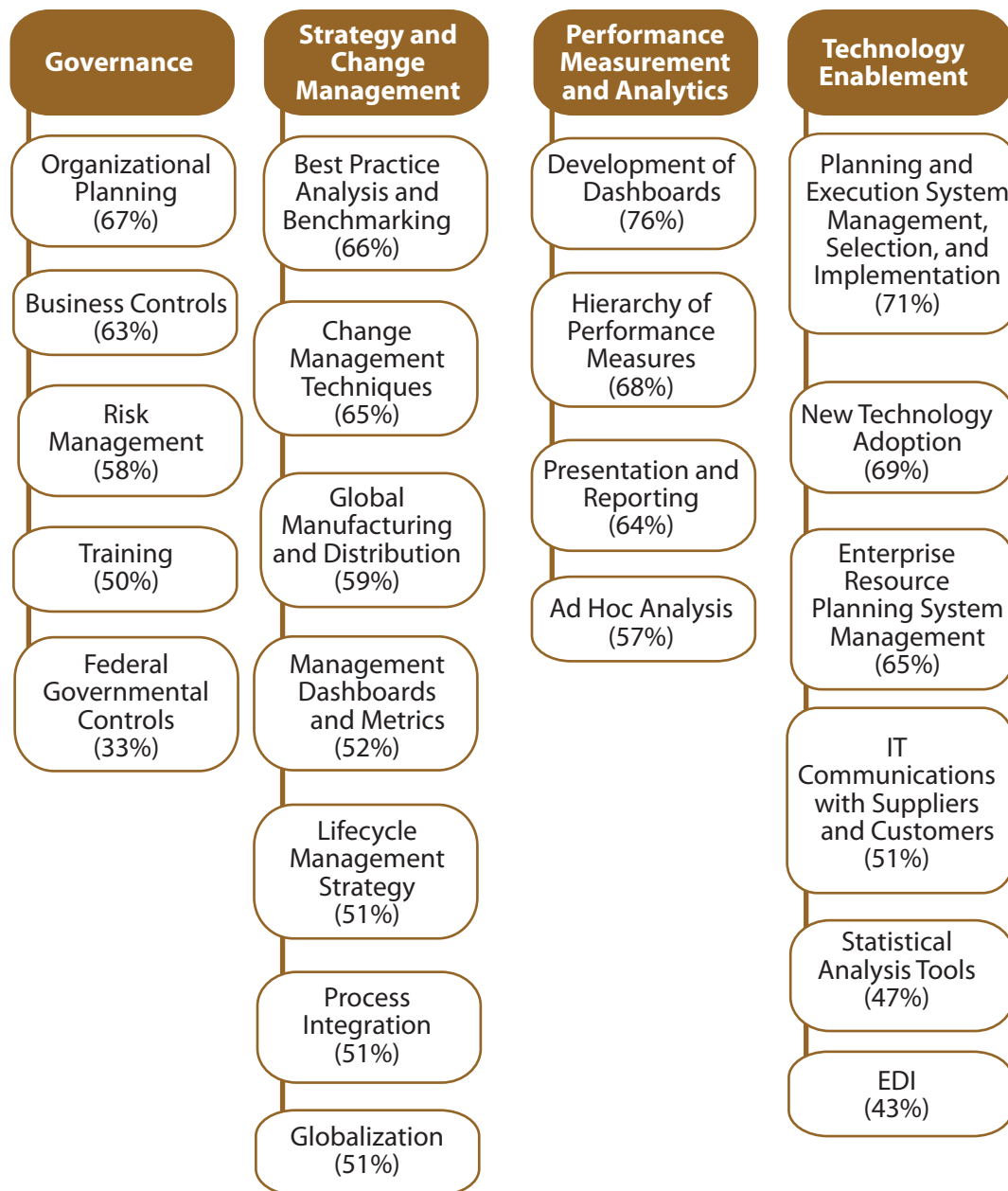
Figure 7a: Subattributes within talent stations—functional



Percentages denote respondents viewing the attribute as a priority.

Source: AMR Research, 2008

Figure 7b: Subattributes within talent stations—enablers



Percentages denote respondents viewing the attribute as a priority.

Source: AMR Research, 2008

Most importantly, executives stressed the need to have students get more direct exposure to the types of issues, pressures, and complexities facing supply chain management professionals while in school rather than waiting to be surprised upon entering a new organization. This is in part because of the lack of time and resources available to train and develop personnel and to build the credibility required in an organization that will not tolerate theoretical obsession.

A consumer products supply chain executive firmly noted, “I don’t want the consultant type. I want to hire an individual who has had a couple of summers of internships, had project work, tangible experience—the more we can take it out of the academic work toward real life, the better.”

From our sample, we identified the universities frequently recruited from to support supply chain talent needs as well as the specific stations pursued during the hiring process. While there are key strengths with most of the top universities that included plan, source, deliver, and performance measurement and analytics, respondents identified the vast majority as specializing in 50% or less of the requisite discipline.

Work needs to be done to extend the curriculum to reflect the complexity and breadth of required skills identified and validated within our Supply Chain Talent Attribute Model. We anticipate that both leading and aspiring universities will want to work closely with identified industry leaders to begin establishing a common curriculum in order to more completely fill out our initial matrix or necessary skills.

Table 1a: Where the industry goes for talent—functional

University	NPDL	Plan	Source	Make	Deliver	Customer Mgmt.	Post-Sales Support
Michigan State							
Penn State							
Ohio State							
Georgia Tech							
MIT							
University of Tennessee							
Arizona State							
Purdue							
U. of Michigan—Ann Arbor							
Stanford							
U. of Wisconsin—Madison							
Total, North America							

	40%+ of respondents
	30% to 39% of respondents
	20% to 29% of respondents

Source: AMR Research, 2008

Table 1b: Where the industry goes for talent—enablers

University	Governance	Strategy and Change Mgmt.	Performance Measurement and Analytics	Technology Enablement
Michigan State				
Penn State				
Ohio State				
Georgia Tech				
MIT				
University of Tennessee				
Arizona State				
Purdue				
U. of Michigan—Ann Arbor				
Stanford				
U. of Wisconsin—Madison				
Total, North America				

	40%+ of respondents
	30% to 39% of respondents
	20% to 29% of respondents

Source: AMR Research, 2008

Recommendations

“You must have the right talent in place. There is no longer the ability to hire smart people and allow them to float to the top.”—Consumer products executive

Supply chain management’s rapid, but at times disjointed, growth and evolution have contributed to executive confusion about the discipline’s priority and span of control. As a result, there are serious deficiencies in bench-strength, primary talent development strategies focused on personnel poaching internally and externally, and legacies that require leading organizations to self-train or pay for subject-matter expertise across the breadth of responsibility.

The increasing visibility and importance of supply chain management show a crisis building with increased responsibility, complexity being driven in part by globalization, and university and professional programs struggling to independently interpret industry needs.

AMR Research has identified a broad, comprehensive set of functional stations needed when considering the development of a supply chain organization. Additionally, industry has validated specific attributes within these stations that can serve as a starting point in developing realistic and more universally accepted curricula.

Preparing your organization

- Test and validate your specific organization’s span of control against AMR Research’s model.
- Identify performance measures that are not aligned or that you are accountable for but over which don’t have explicit authority.
- Work toward incorporating and aligning major station gaps.
- Understand how supply chain talent management is supported (or not supported) by overall company HR initiatives and work to align the supply chain functional personnel investments and goals with company-wide programs.
- Participate in AMR Research and the Supply Chain Council subcommittee’s supply chain management curricula development.

Accessing the Appendix

Access the complete PDF version of the Appendix for this Report in PowerPoint format: <http://www.amrresearch.com/research/reports/images/2008/SupplyChainTalent-Appendix.pdf>. The Appendix contains additional findings from our supply chain talent study.

Notes

Research and Advice That Matter

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