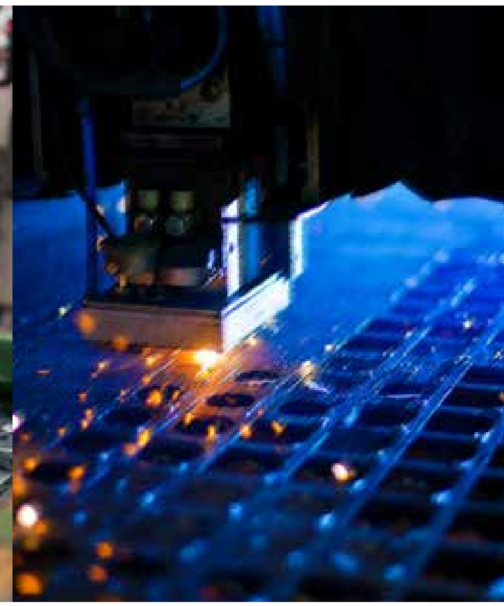
D-Terra Solutions Insight Report

The Advantage Imperative

What every manufacturer needs to know about managing in the globalized economy



Manufactured goods supply chains can be improved with comprehensive solutions that link planning, engineering, procurement, production and logistics, enabling companies to achieve the innovation, versatility and responsiveness they need to compete in globalized markets.

D-TERRA SOLUTIONS

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This Insight Report was produced by D-Terra Solutions to provide information about sourcing and supply chain management trends that influence the strategic choices of manufacturers, distributors, and retailers—with expectations that our analysis will spur further discussion about how companies (like yours) can drive innovation and sustain advantage in a competitive global market. We welcome your comments and questions via email at info@dterrasolutions.com or Twitter @dterrasolutions.

Thriving in the Global Economy

In the depths of the recent "Great Recession", the business press reported on the demise of domestic manufacturing, debated the pros/cons of offshoring strategies, and lamented competition from low-cost producing countries—while offering various remedies for bringing back jobs to the United States.

In the last two decades, globalization has become a key fiber in business economics; finished products dependent on a component sourced from another continent is the norm not the exception. And the transition to prevalence of offshore production has been anything but smooth. Manufacturers in the U.S. and other developed nations have grappled with monumental challenges: How to create competitive advantage in a globalized economy? And how to sustain advantage with increased demand volatility?

American business leaders have had to rethink their manufacturing supply chain strategies. Many have focused on optimizing ROI by concentrating on managing complex tradeoffs among product cost variables such as reliability, consistency, raw materials, spec tolerances, lead-time, routing, speed, inventory positioning, and timing of customization. Companies of all sizes and types built the business case for offshore production as the best solution. From maquiladoras across the border to plants halfway around the world, offshoring has reduced costs—with permanent economic consequences for many product and service industries.

The Advantage Imperative

Fast-forward to 2012: the world economy is still in turmoil but productivity is going through the roof. Domestic job growth lags overall, but the manufacturing sector is significantly stronger. The business news reports that companies are *reshoring* or *near-shoring* manufacturing operations in North America to rebalance product cost/quality and reduce supply chain disruptions.

Proximity has benefits, no doubt. Yet despite renewed viability of domestic production in certain product/market contexts and an election-cycle backlash on outsourcing, *manufacturers continue to increase sourcing to low-cost countries.*

Why? Industrial companies that sell to global markets—to customers in the developed world as well as in emerging markets—recognize the imperative of doing a better job balancing cost and service. Being on par in terms of price and quality gets the seller in the door—but service wins (and keeps) the business. After a decade of dealing with product quality problems and supply chain disruptions, more industrial manufacturers, customers, end-users, and even consumers are attentive to the real cost of quality, more efficient manufacturing supply chains and their strategic customer relationships. Product integrity is the ultimate service attribute and source of sustainable competitive advantage.[1] Product and price advantage can be replicated by competitors but a strong 'customer service culture' is not easily copied. This is especially true for complex engineered products.

As a result, manufacturing organizations are moving towards a more strategic, customer-oriented view of global network design and sourcing.

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[1] In their July 1990 Harvard Business Review article titled "The Power of Integrity", KB Clark and T Fujimoto link a company's ability to sustain competitive advantage with interdependencies of product integrity, product/ service innovation, and business process management: *"In the dictionary, integrity means wholeness, completeness, soundness. In products, integrity is the source of sustainable competitive advantage. Products with integrity perform superbly, provide good value, and satisfy customers' expectations in every respect, including such intangibles as their look and feel….Companies that consistently develop products with integrity are coherent, integrated organizations. This internal integrity is visible at the level of strategy and structure, in management and organization, and in the skills, attitudes, and behavior of individual designers, engineers, and operators. Moreover, these companies are integrated externally: customers become part of the development organization. Integrity starts with a product concept that describes the new product from the potential customer's perspective…. Whether the final product has integrity will depend on two things: how well the concept satisfies potential customers' wants and needs and how completely the concept has been embodied in the product's details. In the most successful development organizations, "heavyweight" product managers are responsible for leading both tasks, as well as for guiding the creation of a strong product concept."*

Emerging Business Performance Trends

However, building strong service competencies challenges most manufacturing firms and requires active leadership involvement and commitment to change management. Services—whether professional *knowledge and innovation* services or supply chain *business process* management—are often less predictable than manufacturing production processes, with unexpected and urgent needs that require 24/7 expert resources. Specialist *business process outsourcing* (BPO) services have stepped up to fill these gaps.

Recent research studies[2] probing manufacturers' attitudes and actions identify several major drivers of long-term demand for BPO services targeting global manufacturing supply chain performance:

TREND #1: Companies will redefine corporate strategy success criteria

Industry leaders recognize that *versatility, responsiveness and innovation* are essential for creating and sustaining global market advantage. Rather than focus exclusively on the 'cost' factor of production economics, executives are shifting to a more holistic approach that prioritizes supply chain sustainability and differentiation. They consider how to reduce total cost, meet customer expectations, and provide competitive product balanced against other strategic drivers that should influence global sourcing decisions: company growth, innovation activities, and new emphasis on organizational flexibility. The new challenge is where and how best to invest 'innovation capital'? These firms are introducing corporate-wide initiatives that guide global sourcing decisions throughout the organization—aiming at a wider range of targeted results such as improved service quality, process improvements, and disruptive technology.

TREND #2: Companies will augment resources with outside expertise

It's simply more difficult to find the right people as competition for talent intensifies. U.S. companies are shifting more and higher-level professional work activities abroad—especially for technical/engineering-driven design, innovation and maintenance processes. And they are doing this to find the qualified personnel that are currently scarce in the domestic talent pool. Competition to attract and retain talent is expected to heat up globally—but, here at home, the next STEM[3]-educated generation in the U.S. will take years to mature. In 2011 a Capgemini research study found that product design and innovation activities are being outsourced not just for the cost benefit, but also "to achieve flexible resource capacity (especially in industries with cyclical engineering workloads and short product lifecycles), reduce time to market, access to specialist tools, and acceleration of development for localized product for emerging markets."[4]

TREND #3: Companies will segment by product lifecycle to improve S&OP

Companies must divide their focus to conquer the challenges ahead. With the advance of ERP systems, access to more data, and new analytics tools, Sales & Operations Planning (S&OP) can more easily dig up insight on operations flows and analyze profitability by segment. For large manufacturers that manage the engineering product lifecycle (PLM) to source and produce hundreds or even thousands of unique designs at different stages of the marketing product lifecycle (PLCM), this analysis exposes high-value opportunities to selectively outsource responsibility for sourcing, engineering, production, and logistics for items in the mature or decline stage—therefore freeing up internal resources available to invest in new product development and to support lines entering high growth stage to maximize profit margin. As more firms of all sizes employ advanced analytics tools, even midsize companies with smaller product portfolios can benefit from devising product lifecycle segmentation strategies to improve manufacturing supply chain performance.

[3] STEM refers to the disciplines of Science, Technology, Engineering and Math

[4] Capgemini research study, October 2011 "BPO in Manufacturing: Catching the New Wave of Innovative Services"

Manufacturing Business Process Outsourcing Contexts		
Context	**Type**	
Knowledge & Innovation BPO Services	Engineering Services	tool design, modeling, analysis, automation
	Research & Development	alternate materials, processes and technologies, market intelligence & analysis
	Product Design	reengineering, reverse engineering, prototyping, design applications, product line/SKU standardization or diversification
	Supply Chain Design & Optimization	alternate sourcing evaluation and 'bestshoring', SKU analysis, inventory and logistics strategy, total cost source/supply feasibility assessments, consulting & advisory
Integrated Supply Chain BPO Services	Procurement & Materials Management	raw materials testing and monitoring, SC security and documentation, PPAP
	Logistics Procurement & Spend Management	LSP/Carrier selection & rate negotiations, insurance & claims, import/export documentation, settlement & payment, and audit
	Logistics & Freight Operations	finished goods freight mgmt., warehousing & distribution, inventory management, value-added services
	Operational Improvement Support	EOQ/scheduling, lean mgmt., QA, order management, customer service

TREND #4: Companies will outsource more as global demand accelerates

The demand for global solutions will require more versatility—and manufacturers are more comfortable with outsourcing as long as key controls are in place. Industry data shows that captive offshore production facilities—controlled and operated by the manufacturer—consistently generate greater cost savings than outsourced operations. Yet the 2011 Offshoring Research Network (ORN) study revealed "a growing preference for delivery centers that are outsourced to service providers across the business services spectrum." This is consistent with growth of 4PL/Lead Logistics services in the U.S. across industry sectors as more manufacturers take advantage of more flexible labor arrangements, semi-variable cost structures, value-added service options, and access to economies of scale that contribute to making the "sum of the parts" greater. The perceived risk of outsourced supply chain operations has diminished. Moreover, the benefits of integrated supply chain logistics expertise and transportation procurement leverage is magnified by the complexity of international freight management.

TREND #5: Companies will expect more from offshore sourcing

Looking ahead, companies with global sourcing experience are likely to continue to tap offshore options—but look for better solutions enabling the versatility, responsiveness and innovation they need to complete. According to the ORN 2011 study, "about half of the responding companies plan to expand their existing global sourcing operations over the next 18 to 36 months, while 70 percent of midsize companies plan to do so during that time." Some of this growth will come through the manufacturing supply chain operations—and other growth will be through knowledge services including IT, finance, accounting, and software application development—as well as product engineering. Another factor propelling dispersed global production is fundamental demand growth from within emerging market countries resulting from an expanding middle class that has more disposable income.

With respect to North American reshoring trends, industry analysts suggest that it is likely that companies engaged in light manufacturing will bring home some supply chain-sensitive operations, particularly those with rapid prototyping-to-production cycles and multi-level channels that add layers of cost. In the long term, however, many heavy industry product categories are unlikely to reemerge in the U.S. given the maturity of manufacturing sector, environmental regulations, investment required to update an aging infrastructure, and workforce demographics.

Expanding the Value of Outsourcing

Supply chain fragmentation, increasing regulatory compliance, and competition from all corners of the world. Manufacturers, distributors and retailers deal with consequences of these global forces every day. Yet executives don't usually go search for global solutions, *per se*. They identify problems in limited contexts—defined by geography, channel, customer type, raw material, product, or functional business process—and hunt for solutions to those specific needs.

Therefore, it is no surprise that we find that firms organized to meet demand for manufacturing sourcing, planning & engineering, and logistics services rarely offer a comprehensive *soup to nuts* global solution. Global consulting firms recognize the BPO opportunity, however, they are in the business of advising and do not provide operational solutions.[5] And the service providers usually arrive at the table with niche expertise and capabilities that address very specific supply chain contexts—staying close to their core competency. Information technology advances are facilitating greater collaboration and integration at less cost and less risk of supply chain breakdowns—and as manufacturers use the enabling systems and tools more, they will demand connectivity from their strategic suppliers and service providers as well.

These conditions will forge opportunity for a new cycle of improved service concepts, M&A activity, and "coop-etition" among specialist providers to provide the right mix of expertise, capacity and market solutions.

Sourcing

As even a single Google search demonstrates, there are thousands of firms involved in the business of connecting buyers with suppliers of manufactured products worldwide. For the China market alone, hundreds of firms claim expertise in sourcing, procurement, manufacturing, and logistics support.

This is a highly fragmented business service category—exceptionally few firms offer source-to-use turnkey solutions and managed services through vertically integrated supply chain infrastructure:

- Most appear to be small entities run by a single expert with a small support team
- Most are specialists with an angle on market needs (and knowledge) who maintain a small base of clients
    - country specific by origin or destination or both
    - industry or segment specialized by material, process, component, whole good or user/buyer type
    - hard goods/product experts or supply chain/service experts, but rarely both
- Most have a small base of customers in niche market segments
- Many of these experts appear to be former corporate managers—whose expertise was built from direct work experience with one company, one industry, and one market context
- Many are more consultant than operator, more broker/agent than business process manager
- Some have developed strategic alliances or preferred supplier relationships to extend their value proposition and generate additional revenue streams
- Few have the competencies, network and integrated supply chain capabilities to provide true global solutions

It's clear that the manufacturers and their customers must systematically reduce supply chain complexity and improve business performance. In response, better and more comprehensive solutions will emerge, offering higher value through strategically integrated process expertise, operational services, and technology for collaboration and automation.

[5] Thought leaders related to BPO strategies for global manufacturers include large firms such as Capgemini, A.T. Kearny, KPMG, McKinsey, Booz Allen Hamilton, as well as dozens of boutique firms specialized in this sector.

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Planning & Engineering

In the planning and design phases of the manufacturing supply chain, two different resource strategies coexist. S&OP functions are typically insourced—as are a majority of the process management for product design and plant engineering. In addition, consultants are engaged on a project basis, bringing special expertise or just extra hands to complete the work faster.

Technically-oriented professional services firms (consultancies) were at one time an extremely fragmented category—many small niche-specialized firms. This is a labor intensive knowledge-based industry and labor costs are sixty percent (60%) or more of revenue. Two long term trends have altered the competitive landscape: a) the 'roll up' mergers and acquisitions of engineering firms to create mega-global entities, and b) the repositioning of software technology firms into the professional services/business process outsourcing space. The end result is that these large firms with global presence are providing diverse managed services that are converging on data-driven decision analysis that define global manufacturing supply chain strategies.[6]

Logistics

Business process specialization drives logistics sector strategy. As Logistics Service Providers (LSPs) grow, they tend not to wander far from their roots, not merely due to familiarity but because integrating disparate logistics operations can be exceedingly difficult and costly. Moreover, service industry businesses succeed through process excellence, consistency, and capital leverage—which narrow specialization makes easier to achieve in day-to-day operations.

Counterbalancing this is market demand for more seamless and efficient integration across specialized functions—which increases complexity for the service provider but also enhances service value.

The logistics services business category is fragmented by business process specialization, enterprise size, operational scope and geographic coverage. Nevertheless, ownership is concentrating as larger firms acquire smaller specialists to fill the service gaps in the fast-growing international logistics segment.[7] Even so, few firms with roots in third party logistics, freight forwarding or asset-based transportation are targeting comprehensive turnkey source-to-use solutions—and those that are tend to concentrate on vertical markets producing higher value goods.[8]

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[6] Examples of the converging professional services include TranSystems, Cognizant and IBM. TranSystems is a global engineering and consulting firm that works with public sector and private sector clients to "improve supply chain performance through supply chain strategy, facilities and strategic master planning, operations consulting, simulations, supply chain technology and systems." Cognizant was founded as a work flow software company—but today provides consulting, BPO services and technology, targeting industry verticals including "manufacturing operations across the product lifecycle". IBM famously reconfigured its business model from technology to managed services to integrated supply chain solutions—and today IBM Manufacturing Solutions "fuels performance innovation through technology and process design that tightens the links and improve collaboration within the supply chain—with consistent standards—to achieve a lean manufacturing process".

[7] As example, Asia-based container steamship giant K-Line Group acquired NYC-based Air Tiger Express Company (ATEC) in 2010 to capture its Asia-focused international logistics services including air and sea cargo forwarding, customs clearance, storage and cargo insurance. http://www.kline.com/

[8] Among U.S. based companies, Menlo Worldwide Logistics, C.H. Robinson, Exel/DHL, FedEx and UPS are furthest along on the global supply chain services integration curve—in part due to scale and assets gained through acquisitions—although their focus remains on core logistics process operations.

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Offshoring Research Network (ORN)
ORN is a recognized international research network tracking the globalization of services and evolution of offshoring practices since 2005 at the function, industry, and implementation levels. ORN was founded at the Center for International Business Education and Research (CIBER) at Duke University and is currently sponsored by PricewaterhouseCoopers and founding member firms of the ORN's Senior Executive Industry roundtable. The ORN's database covers large multinational, midsize, and small companies headquartered across the globe, including nearly 2,000 companies engaged in global sourcing and more than 600 service providers.
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The National Center for the Middle Market
Sponsored by The Ohio State University Fisher College of Business and GE Capital, the Center is dedicated to researching, analyzing, and mapping the U.S. middle market economy—companies with revenue between $10 million and $1 billion. The Center provides critical insights and analysis that help drive growth, increased competitiveness, and job creation for companies in this sector, policy makers, and other key stakeholders—helping companies to better understand how and where to expand and draw a blueprint for sustainable growth.
GO TO SOURCE

About D-Terra Solutions

D-Terra Solutions is a manufacturing supply chain services company with global reach and expertise that spans Planning, Engineering, Procurement, Production and International Logistics serving industrial products markets.

Orchestrating sustainable advantage, link by link

We facilitate and manage comprehensive outsourced solutions—from product design to sourcing to finished goods delivery that go beyond functional excellence, enabling our customer to sharpen their focus on business innovation and market growth strategies. D-Terra Solutions creates value for customer principally through process management expertise, strategic relationships, negotiating prowess, and managed services network scale:

- » *Refocus knowledge*—prioritizing innovation, outsourcing lower value tasks
- » *Segment demand*—accelerating speed to market from prototype to product to delivery
- » *Optimize networks*—capturing economies to reduce total supply chain cost
- » *Release capital from captive offshore operations*—gaining agility and versatility

No two supply chains are alike, but they share our values

Smarter supply chain aren't necessarily offshored, they're best shored. Intelligent outsourcing can lever your enterprise strategy via high-performance partners who share your emphasis on quality. Our deep domain knowledge—complemented by our strategic supplier networks—has developed over years of experience working with the converging value chains of OE manufacturers and their diverse suppliers.

D-Terra Solutions, LLC

Global product development and supply chain experts

Planning | Engineering | Procurement | Production | Logistics

Headquarters:
4419 Equity Drive, Columbus, Ohio 43228
614.527.9370
info@dterrasolutions.com
www.dterrasolutions.com

LinkedIn www.linkedin.com/company/D-Terra-Solutions
Twitter @DTerraSolutions
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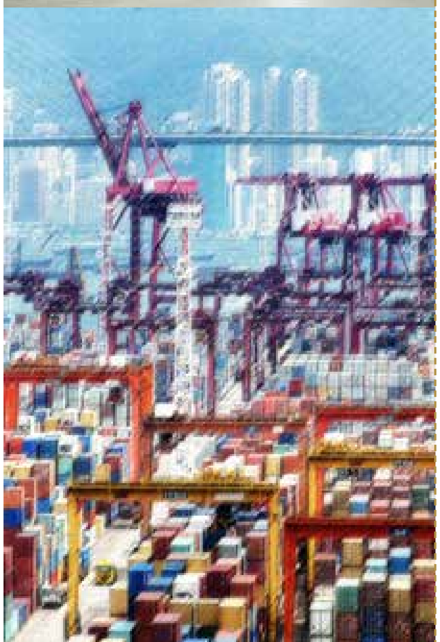

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614.527.9370
www.dterrasolutions.com
@DTerraSolutions