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THE GLOBAL LOGISTICS MAGAZINE

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COVER STORY

INDUSTRIAL EVOLUTION

Can logistics help shape Engineering and Manufacturing?





"WHEN WE SHIP OUR LARGEST MINING TRUCK ACROSS THE WORLD TO PLACES SUCH AS INDONESIA OR AUSTRALIA, IT WEIGHS THE EQUIVALENT OF TWO FULLY FUELED 747 JUMBO JETS."

Ed O'Neil

EXECUTIVE VIEW

MAKING TRACKS WITH CATERPILLAR

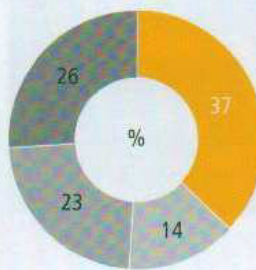
Ed O'Neil, Head of Logistics at Caterpillar, explains the supply chain challenges being tackled by the heavy equipment giant, and points to the importance of people power in the company's relentless expansion.

When Ed O'Neil is not managing logistics for Caterpillar, he is out on the water engaging in his favorite pastime, wakeboarding. "I love to fly through the air behind a boat," he says, "even if the landings are not always good."

An inelegant landing is something that the vice president of Caterpillar Logistics Inc. and general manager at Caterpillar Inc. can allow himself only in his time off. Managing global logistics in the twenty-first century is a challenging business, and at Caterpillar O'Neil heads operations that involve both some of the world's most complex supply chains and some of its most remote and difficult locations. Caterpillar Inc. is the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines, industrial gas turbines, and diesel-electric locomotives. In 2012, Caterpillar Inc.'s sales and revenues totaled \$65.875 billion.

O'Neil's responsibilities include the design, procurement, and overall running and efficiency of Caterpillar's logistics operations and networks worldwide. Inbound, this involves moving material and components around globally within Caterpillar's vast network of suppliers and manufacturing sites. Outbound, Caterpillar's finished products must be delivered safely, cost-effectively, and on time to its dealers around the world.

**CATERPILLAR'S
SALES BY REGION
Q3 2012**



■ North America
■ Latin America
■ EMEA
■ Asia Pacific

Total Sales: \$16,445 million

Source: Caterpillar

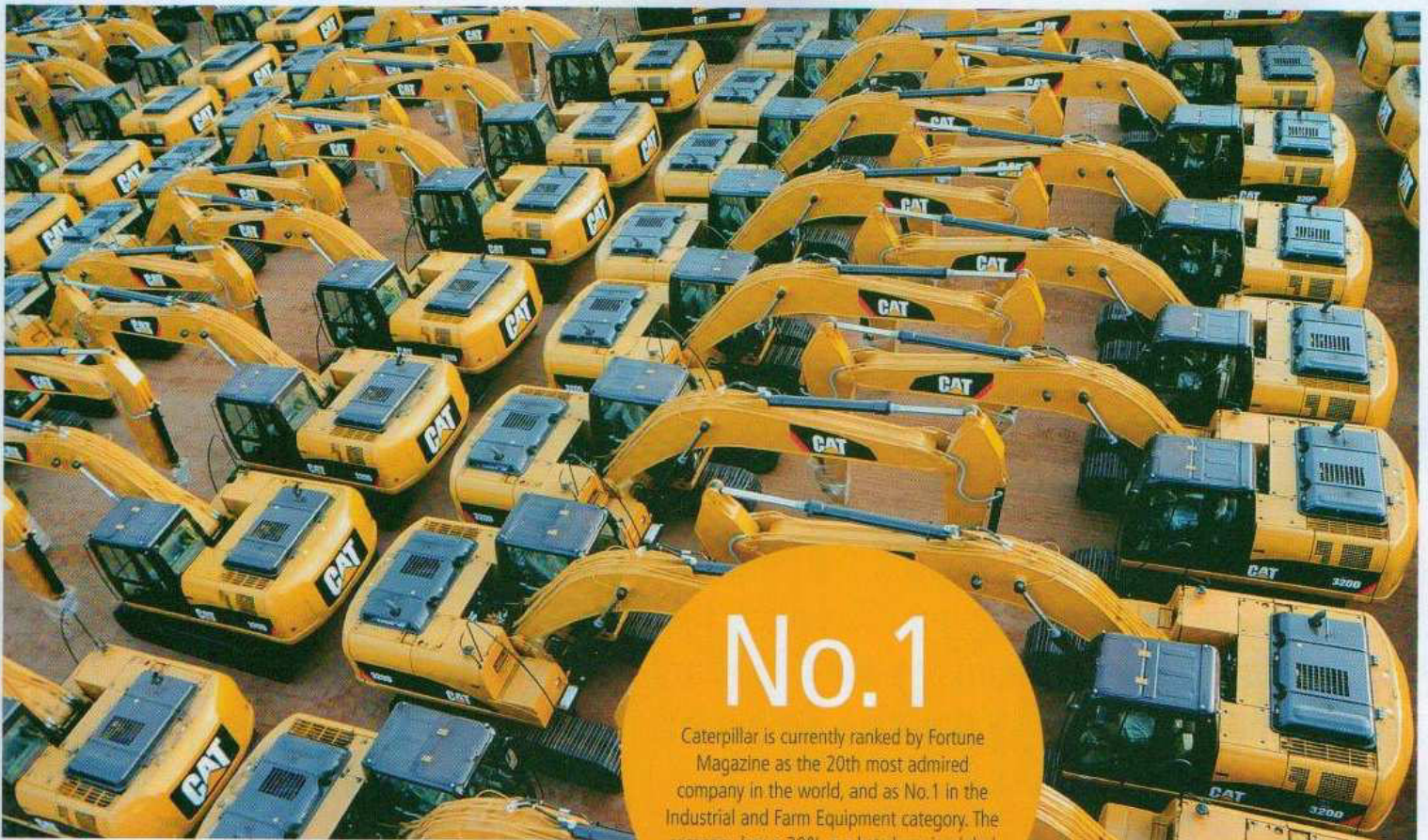
"I love the way our products look," O'Neil explains. "But in my world it's about moving a lot of big, ugly iron. Our largest tonnage is on the outbound side with break-bulk and railroad shipments. For example, when we ship our largest mining truck out of the North American facility across the world to places such as Indonesia or Australia, it weighs the equivalent of two fully fueled 747 jumbo jets."

THE IMPORTANCE OF VISIBILITY

If the sheer bulk and weight of products and components in the engineering and manufacturing sector present enormous logistical challenges, so too does the complexity of the supply chain. "The main challenge in the industry is how to achieve the right balance in a company's sourcing, manufacturing, and distribution strategy. We're always striving to improve product cost structure through reduced supply chain variability, minimum transit inventories, achieving higher velocity, and above all by creating a high degree of visibility in our shipments."

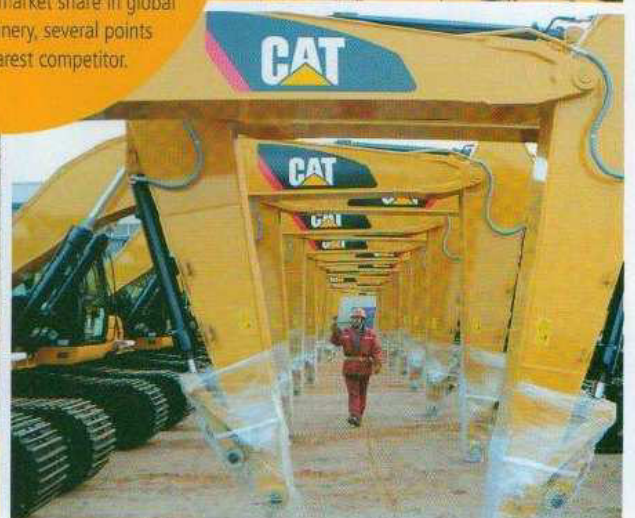
Achieving this visibility, O'Neil says, is crucial. DHL alone handles over 400 inbound and outbound air shipments every day. Then there are land and sea shipments worldwide.

"We employ advanced global materials management software for EDI, which allows us globally to



No.1

Caterpillar is currently ranked by Fortune Magazine as the 20th most admired company in the world, and as No.1 in the Industrial and Farm Equipment category. The company has a 30% market share in global construction machinery, several points ahead of its nearest competitor.



HEAVILY INTO CHINA: Rows of imported Caterpillar excavators wait at the Port of Lianyungang in Jiangsu province (top and bottom right), while a driver clambers into his dump truck at a Chinese gold mine (bottom left).

track and book material with high accuracy in our network. Regionally – in the Americas, Asia, and in Europe – we also deploy ‘control towers’ over the top of the network.”

Typically, a control tower takes in the strategic design of a supply chain. It not only tracks costs but also proactively adapts the supply chain in response to anticipated changes in the market to make sure it still meets the company’s strategy. And it manages all of the operational aspects of this supply chain on a day-to-day basis. This offers a highly effective means of bundling technologies, efficient processes, and people together in a single hub to achieve visibility. Two of Caterpillar’s control towers, O’Neil explains, are managed solely by DHL.

On the technological front, Caterpillar is also pursuing a strategy of consolidating and standardizing its systems based on SAP. This is greatly benefiting the operations and after-sales service side of the business, he says, where the company is able to leverage the broad and highly effective dealer network established over its 88-year history. Caterpillar, says O’Neil, is a recognized industry leader in terms of its after-sales and service.

Having the right technologies in place is important, but these technologies must be augmented by close collaboration and the alignment of processes. Caterpillar’s collaboration, O’Neil explains, goes in two clear directions. One leads outside the company to partners such as DHL, with whom Caterpillar seeks

to leverage close relationships in order to create an optimum network. In another direction, collaboration is driven vigorously inside Caterpillar itself. For O'Neil, the challenge is achieving alignment – the perfect balance between being a product-driven organization and using company-wide advantages of scale from a logistics perspective to arrive at effectively priced products.

Caterpillar has certainly positioned itself as a highly product-driven company. This extends from design and the procurement of material and components through to manufacture of a finished product. “But there must also be the capability to deliver this product cost-effectively to wherever it needs to go.”

“In my world,” O'Neil continues, “distance is an enemy. I'm moving material all over the globe, so I need to leverage the best possible cost structure and velocity in terms of effectively consolidating and de-consolidating material. The question is, ‘How can I create the big pipes that are flowing globally and fill these as effectively as possible?’”

EVOLVING TO MEET GROWTH

With Caterpillar's current rapid expansion, leveraging scale in logistics – while reaping the rewards of being a product-driven organization – is likely to become even more crucial. The company has a footprint on six continents and is driving significant growth in Southeast Asia, China, India, Australia, and Central and South America. Caterpillar finds itself facing a challenge that many other companies would envy: how to evolve and develop a logistics network to meet the necessary increases in capacity and capability stemming from this growth.

“Expansion means bringing new capabilities and processes into a region,” O'Neil explains. “This can be done either through strategic partners such as DHL, or by performing the strategic functions within Caterpillar.” Continuing to develop data and analytics



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tools will be one part of the solution. Having talented people in place with a deep understanding of logistics and the industry will be another. “A challenge in the world economy is making sure we have the best people to support where we're going.”

In a labor market that is characterized by high demand worldwide for skilled engineers and logistics people, Caterpillar is committed to growing and refining the skills of its existing talent. One aspect of what O'Neil calls the company's “multi-tiered approach” is a “Cat University,” which has integrated a number of supply chain and logistics elements into its courses for employees.

CONTINUED DEVELOPMENT OF GLOBAL RELATIONSHIPS

“Another tier is our continuing recruitment and retention of talented people across the world,” says O'Neil. Caterpillar is well positioned to attract the best and the brightest. In 2012, Human Resources Executive Online rated the company 16th among the world's top 50 companies on the criteria of best HR practices.

“And then there's our continued development of global relationships with key universities. This goes beyond the recruitment element. We drive collaboration by engaging back with the universities to help them design programs that meet the demands of logistics today and tomorrow. We're doing this right around the globe – in the United States as well as in places like China and India.”

Over the past decade or more Caterpillar has successfully extended its footprint worldwide, including in India, China, and Southeast Asia. While expansion, especially into regions such as these, inevitably brings new challenges, Caterpillar sees the journey ahead of itself and understands how critical it is to be well positioned in terms of technologies, partners, processes, and people. The company's customer base has long been global. “Now,” says Ed O'Neil, “our whole business is global.” — *Anthony Haywood*

CATERPILLAR AT A GLANCE: CORPORATE STRUCTURE & KEY FIGURES

Caterpillar Inc. Headquarters
Peoria, Illinois.

Caterpillar Logistics Inc.
(Cat Logistics) 100%-owned
subsidiary of Caterpillar Inc.,
headquarters in Morton, Illinois.
Provides supply chain solutions
and services to Caterpillar Inc.

**125
THOUSAND**
employees in Q4, 2012

Neovia Logistics Services LLC
(formerly Caterpillar Logistics Services LLC) Provides full logistics services to third parties in sectors including automotive, industrial and aerospace service parts, consumer durables, technology, electronics, and manufacturing. Caterpillar retains a 35% interest

in Neovia (65% stake owned by Platinum Equity).

Offices & facilities: More than 500 locations in 52 countries
Consolidated sales & revenue (2012): \$65,875 billion
Consolidated operating profit (2012): \$5,681 billion

Learn more about the global operations of the Caterpillar group at:

 caterpillar.com