Building Insights to Plan for 2045

FUTURE THINKERS BREAKBULK GLOBAL

FUTURE THINKERS 2045: INDUSTRY GUIDANCE FOR PROJECT CARGO IN AN ERA OF DISRUPTION

Findings From the Inaugural Global Summit
by Breakbulk Events & Media

Image Credit: Bertling

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Cover Image Credit: Combi Lift

EXECUTIVE SUMMARY

Breakbulk's Future Thinkers initiative was launched at a moment of extraordinary uncertainty and transformation for the global project cargo, logistics and transportation sector. Bringing together leading voices from across the industry, the inaugural meeting in Houston explored how major forces, from AI and energy transition to workforce change and geopolitical volatility, are reshaping how complex projects are planned and delivered.

The aim was not to predict a single future, but to better understand the trends and scenarios that could define operations in 2045. This meeting was the beginning of a new roadmap for the Breakbulk community to guide their business decisions toward the most positive outcome over the next two decades.

Discussions across focused work groups revealed a sector in flux. Technology is accelerating faster than infrastructure, data security is fast becoming a core business risk and new energy models are reshaping what and how cargo is transported. At the same time, participants highlighted that people remain both the industry's greatest asset and its greatest challenge.

Attracting, developing and retaining talent will be as important as adopting AI, robotics and data-driven tools. In this environment, adaptability and resilience emerge as essential capabilities for survival and success.

Looking ahead to 2045, the Future Thinkers dialogue raised fundamental questions...

- **Will tomorrow's challenges look familiar, or will they be entirely new?**
- **Will projects become smaller, faster and more modular, or larger and more complex?**
- **How will automation, alternative energy and digital platforms reshape the role of logistics providers?**

By exploring multiple futures rather than a single linear path, the initiative encourages the industry to think beyond legacy models and test assumptions before change is forced upon it.

Over the next year, this initial group will evolve into an international thinktank as we introduce the program at each Breakbulk event: Middle East, Europe, Americas and Asia, attracting the brightest minds in our industry. This represents a new level of collaboration, uniting the event regions to bring more certainty to the market. It's a big task, but one that could have a huge impact on business strategy.

Read on to discover more of the initial findings from the Houston summit.

MEET THE FOUNDING FUTURE THINKERS

DR. MEHDI AZIMI
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Transportation Studies
College of Engineering, Science, and Technology (COSET), Texas Southern University

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Hatch Ltd.

FRANK GUZMAN
Senior Director,
Project Logistics Global
C.H. Robinson

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McDermott

ANDERS HYRUP
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Jumbo- SAL -Alliance USA

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– Lubricants Supply Chain
Shell

CYRIL VARGHESE
Global Logistics Director
Fluor

WHY FUTURE THINKING MATTERS FOR BREAKBULK AND PROJECT CARGO

According to our Future Thinkers, people remain the industry's greatest strength as well as its greatest challenge. Many participants noted that today's biggest test is finding and retaining talent with both practical expertise and the ability to innovate. That challenge is unlikely to disappear by 2045.

Others noted a growing move toward task-oriented thinking at the expense of long-term relationships, even though collaboration and personal networks continue to underpin complex project cargo operations. This tension is expected to persist, making investment in people just as critical as investment in systems.

Education and skills development emerged as a closely linked concern. Participants questioned whether current academic pathways are equipping future professionals with the practical, commercial and critical-thinking skills required by the sector. While technical proficiency is essential, there was strong consensus that education must go beyond tools and software to develop judgment, creativity and contextual understanding. Without these capabilities, organizations risk becoming overly dependent on automation without the expertise to challenge or validate its outputs.

Technology itself was viewed as both an enabler and a growing source of complexity, with the pace of innovation outstripping the infrastructure that surrounds it. Data security, in particular, was highlighted as an escalating challenge as companies exchange ever larger volumes of sensitive information across digital platforms.

> The biggest challenge today is people.
>
> **John Hark, Bertling**

Participants stressed that controlling, protecting and interpreting data will become even more important over the next twenty years, especially as AI systems play a greater role in decision-making and execution.

Looking toward 2045, external forces such as energy transition, regulation and macroeconomic stability were seen as potential inflection points for the sector's role in global projects. As definitions of energy continue to evolve, logistics providers will need to adapt their capabilities accordingly.

At the same time, shipowners and asset-heavy operators face difficult long-term decisions amid uncertainty around fuel technologies and regulations. The ability to remain flexible while managing capital risk will be key.

When asked which skills will matter most in the future, adaptability topped the list, followed closely by digital fluency and the ability to work alongside AI rather than be displaced by it. Technical skills in data and robotics will be essential, but they must be paired with strong interpersonal abilities and teamwork.

One participant described the "purple people" who can move fluidly between the digital and commercial worlds. Hands-on operational knowledge was also seen as crucial, ensuring that automation enhances rather than overrides practical expertise.

Despite the scale of change ahead, the overall outlook was constructive. Participants recognized that disruption is inevitable, but not inherently negative. New roles will emerge alongside automation, and fresh perspectives will challenge legacy thinking.

Collaboration across the value chain will become increasingly important. If the sector can stay resilient, adopt new tools and work together, it can move from coping with disruption to shaping it.

> The key skill will be adaptation to technology. We're approaching a point, I think it's coming soon, where you'll either understand and use AI, or you'll be replaced by it.
>
> **Lucas Strom, DHL Global Forwarding**

> We're now recruiting large numbers of fresh graduates. Young people think differently. Whatever takes me two hours, they can do in another way in minutes. Sometimes it looks strange to me, but the results are precise, accurate and low-cost.
>
> **Mohammad Jaber, Combi Lift**

KEY TAKEAWAYS

- **People** remain the industry's defining challenge and advantage.
- **Adaptability** and **digital fluency** will outweigh any single technical skill.
- **Data security** and **governance** are fast becoming core business risks.
- **Energy transition** and **regulation** will fundamentally reshape global project flows.

MAJOR THEMES

Future Thinkers identified six forces that will shape project cargo between now and 2045. None operates in isolation; together they define the risks, constraints and opportunities the industry must navigate.

AI & AUTOMATION

“Use it or be replaced by it.”

Many participants expect a near-term tipping point where professionals either work fluently with AI and automation or risk being displaced by those who do, even as full automation across projects remains unlikely by 2045.

WORKFORCE & SKILLS

“People are still the hardest part.”

Talent remains both the sector’s greatest asset and its most persistent constraint, with worries about critical-thinking erosion and long-term structural shortages rather than a temporary hiring cycle.

ENERGY TRANSITION

“Smaller projects, faster returns.”

The group anticipates a decisive shift toward smaller, more nimble energy developments – including SMRs and modular renewables – that will reshape cargo profiles and routing.

DATA & CYBERSECURITY

“One gap can take down your whole network.”

The group anticipates a decisive shift toward smaller, more nimble energy developments – including SMRs and modular renewables – that will reshape cargo profiles and routing.

GEOPOLITICS & POLICY

“Projects live or die by policy swings.”

Sudden shifts in trade rules, tariffs and energy policy can rapidly reverse multi-billion-dollar bets, making scenario planning and diversification essential to business survival.

INFRASTRUCTURE CONSTRAINTS

“Technology is sprinting ahead of capacity.”

Ports, grids and transport corridors are struggling to keep pace with new technologies and cargo patterns, forcing hard choices on where and how to invest limited capital.

INDUSTRY SENTIMENT SNAPSHOTS: TODAY AND 2045

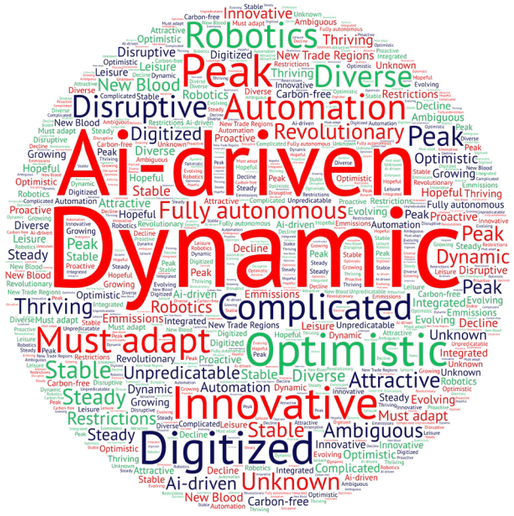
We asked each participant to give us three words to describe the industry today and another three to describe the landscape 20 years from now.

Today’s responses were heavily oriented around unpredictability and risk, while the future is depicted as dynamic, tech-driven and requiring adaptation, suggesting optimism about mastering transformation even amidst ongoing complexity.

But complexity persists. Both eras are described as complicated, ambiguous and unpredictable, implying continuing challenges with a future marked by innovation and adaptation.

When we split the group into two (negative and positive about today), those frustrated by the present express the strongest optimism for 2045, while those already positive, remain confident.

Today



2045

A CAUTIOUS PATH TO LARGE-SCALE AUTOMATION

Gulshan Singh, Huntsman

> Automation can bring efficiency but must be balanced with employment and ethics. Robotics will create new opportunities but also new dependencies. And cybersecurity will determine how safe or exposed we are in that world.
>
> **Gulshan Singh**

Themes:

The next two decades will see a dramatic expansion in automation. But progress will be uneven and must be balanced with employment and ethics. Much like choosing between a bicycle or a car to travel from A to B, organizations will deploy different tech tools depending on their needs and resources.

Highly personalized systems, much like "Jarvis" from Iron Man, are expected to emerge, capable of storing and interpreting an individual's entire life. But their impact will depend on who can access them and how fast they spread.

Despite rapid buildout, full automation remains unlikely by 2045. Robotics will become more commonplace, but human oversight will still be needed. Automation that expands too quickly risks widespread social disruption, especially in countries already experiencing economic fragility. Recent examples from Nepal, Bangladesh and Sri Lanka illustrate how quickly unrest can unfold.

A more realistic path is hybrid growth, with differing levels of AI and robotics adoption across regions, and new roles emerging for technicians and specialists who keep automated systems and robots operating. As AI proliferates, cybersecurity will become even more critical. The scale and speed of cyberattacks are already accelerating, with millions of attempted intrusions occurring daily in the U.S. alone.

Most are stopped, but some succeed, underscoring the operational and financial exposure faced by companies reliant on digital infrastructure. With such risks, an organization's defenses must be flawless. One gap can expose an entire network. Looking ahead, the industry has an opportunity to pair technology with a more resilient workforce and smarter digital safeguards.

Automation and robotics will unlock new opportunities, but they will also demand ethical decision-making and significant investment in cybersecurity. These forces can position the global breakbulk and project cargo sector to thrive over the next twenty years.

WHAT COULD GO RIGHT

- **Efficiency gains**
- **Hybrid automation models**
- **New technical roles**

WHAT COULD GO WRONG

- **Cybersecurity exposure**
- **Uneven adoption**
- **Workforce disruption**

DISRUPTION AT FULL SPEED

Mohammad Jaber, Combi Lift

> In logistics, success will come from precision, speed and cost efficiency. Those who adapt will survive. Those who cling to old models will fade.
>
> **Mohammad Jaber**

Themes:

Disruption is rarely predictable. COVID closed down global systems, while AI has begun reshaping how we understand uncertainty itself. What seems fast today will feel slow tomorrow. In the very near future, computing power will allow AI to generate in a day what once took teams years to produce.

That acceleration is already evident in the rapid expansion of data centers, breakthroughs in long-life energy storage and early concepts for vessels powered by microscopic fuel sources. As decarbonization and alternative energy advance, new technologies will continue to exceed our expectations.

Advances in materials and manufacturing are upending the industrial landscape. Ultra-light, high-strength composites and 3D printing are already challenging traditional production and shipping models. If components can be printed closer to the point of use, or if cargo becomes denser and more modular, logistics will need to adapt rapidly.

For heavy industry, change will be uneven, as some sectors shrink and others expand. But the trend points to smaller, smarter, faster cargo flows complemented by high-precision automation.

Automation will inevitably replace certain tasks, such as trucking, warehousing and piloting. Conversely, new roles will emerge in realms including robotics, data management and digital supply-chain design. Healthcare technologies may extend working lives and expand global populations, increasing the complexity and opportunities in logistics.

Creativity, problem-solving and system-level thinking are likely to become more valuable as the elements of work shift. The challenge will be ensuring that technological progress enhances livelihoods rather than displacing them without support.

Many companies in the breakbulk sector are already preparing for a more digital future by developing augmented-reality tools, digital twins and predictive logistics platforms. By 2045, entire supply chains may operate with minimal human intervention, coordinated by global digital marketplaces enabling real-time optimization.

Traditional asset-heavy players will need agility to evolve, but the sector as a whole stands to benefit if competition gives way to deeper collaboration. Through collective innovation and cross-sector partnerships, logistics can use new technologies to move from managing disruption to steering the future.

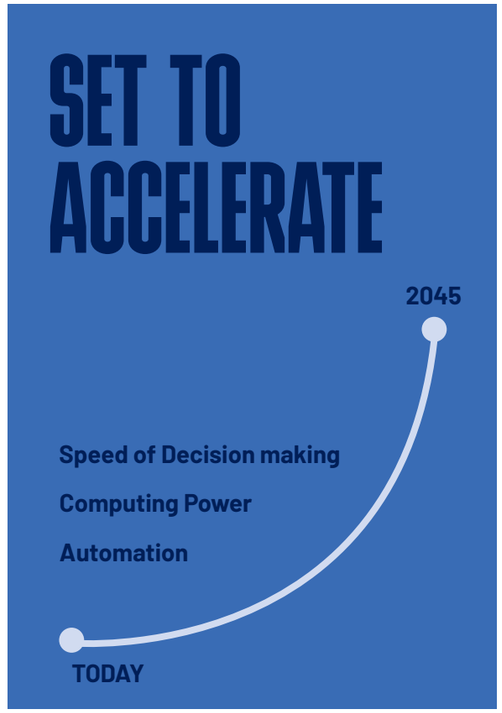


Image Credit: SAL Heavy Lift

WORK GROUPS

MARITIME & PORTS

In this group:

Anders Hyrup,
President, JSI Alliance

Geir-Eilif Kalhagen,
Maritime Division Director,
Texas Department of Transportation

Margaret Kidd,
Department Chair, Logistics & Supply Chain Management, San Jacinto College

Dr. Jean-Paul Rodrigue,
Professor at the Department of Maritime Business Administration, Texas A&M Galveston

Lucas Strom,
Head of Industrial Projects US,
DHL Global Forwarding

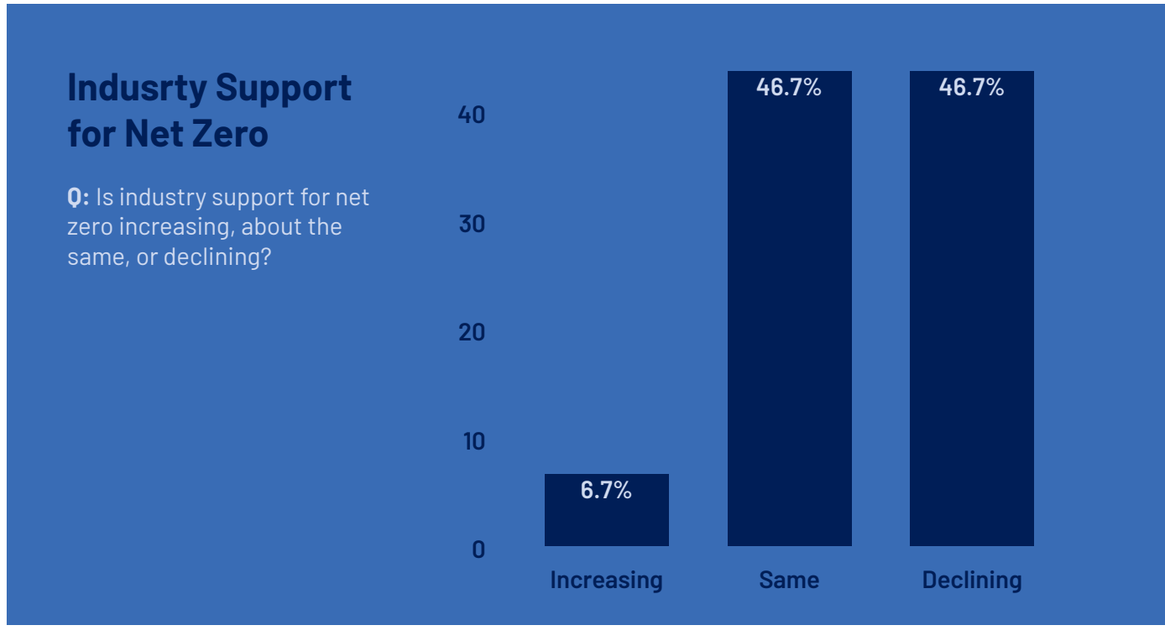
Themes:

The Maritime & Ports work group revealed a sector grappling with different challenges: a deepening labor shortage, uneven technology adoption and the need to rethink ports as strategic assets. Future labor availability was a key talking point, particularly in the U.S., which faces a shortage of 50,000 truck drivers, a figure projected to rise dramatically.

Port modernization will be difficult without new approaches to negotiating with organized labor, reskilling workers and ensuring consistent policy support. Automation, autonomous trucking and AI-enabled planning were seen as potential solutions, but only if supported by aligned labor and regulatory strategies.

Technology itself sits at an inflection point. While most innovation has centered on containerized cargo, participants argued that breakbulk automation will mature by 2045 as scale and investment catch up with opportunity. AI was identified as a critical tool for evaluating infrastructure investment, forecasting capacity needs and aligning workforce planning with future demand. Participants emphasized that ports must increasingly be viewed as strategic national assets rather than independent competitors. With limited greenfield sites remaining, coordinated investment and land-use planning are becoming essential.

> With net zero, the technology is already there. But are consumers ready to pay the price? The demand for fossil fuels is going to remain.
>
> **Anders Hyrup,**
> **Jumbo- SAL -Alliance USA**



Some ports may relocate core activities away from dense urban areas toward hinterland logistics hubs supported by rail and satellite yards.

At the same time, ports are microcosms of their communities, subject to social, political and cultural pressures. Elected port commissions, often responding to broader “social justice” or community priorities, may face pressure to repurpose marine terminals for alternative uses such as housing. These are well-intentioned actions that risk unintended economic consequences.

Structural integration within the port and shipping industry was described as relatively mature, driven by vertical integration through shipping-line-operated terminals and horizontal alliances managing capacity and networks.

However, participants noted growing uncertainty. Trade restrictions introduced in 2018 and intensified in 2025 — particularly U.S.-China tariffs — have altered demand patterns and prompted reassessment of these models.

Regulatory responses, including ownership restrictions, flag rules and limits on hinterland access, could force divestment from parts of the maritime supply chain, placing existing integration strategies under renewed scrutiny.

> We need to start looking at ports as strategic assets.
>
> **Geir Eilif Kalhagen,**
> **Texas Department of Transportation**

Decarbonization added another layer of complexity. While green technologies are already available, participants questioned whether shippers and consumers are truly willing to pay for them.

Bifurcated global priorities and inconsistent policy frameworks, underscored by the IMO’s postponement of its decision on a net zero framework, leave early adopters exposed to financial risk if regulatory conditions shift. For many operators, the debate remains a clash between philosophy and business models.

Finally, evolving production patterns driven by modularization, nearshoring and industrial policy are reshaping cargo flows. Manufacturing is becoming more regional, though reliance on global sourcing persists where skilled labor or technology remains scarce.

Ports that succeed by 2045 will be those that balance technological ambition with workforce resilience, community integration and long-term strategic coordination.

KEY TAKEAWAYS

- **Ports must be managed as strategic assets,** balancing national economic value with community and political pressures.
- **Labor** and **skills** will be the defining constraint on port competitiveness by 2045.
- **Trade policy, regulation and decarbonization economics** are forcing a rethink of integration models across maritime supply chains.

WORK GROUPS

PROJECTS: ENERGY & INFRASTRUCTURE

In this group:

Steve Hill,
Director, Global Operations - Logistics & Trade Compliance, McDermott

Marco Poisler,
Chief Operating Officer - Global Energy & Capital Projects, UTC Overseas

Dr. Gulshan Singh,
Global Procurement Data Analytics Manager, Huntsman

Srividhya Vaidyanathan,
Global Process Owner – Lubricants Supply Chain, Shell

Cyril Varghese,
Global Logistics Director, Fluor

Themes:

The Energy & Infrastructure work group pointed to a project landscape that is already shifting as companies rethink where projects are built, how equipment is sourced and what technologies are deployed. Participants noted the rapid move toward smaller and more agile energy developments, with solutions such as small modular reactors replacing large-scale industrial plants.

Participants described how companies are simultaneously exploring and exploiting new technologies — especially AI — backed by both capital and a willingness to test emerging ideas. By 2045, projects are expected to be leaner, faster and very AI-driven.

The widening talent gap remains a challenge, with many expressing concerns that "the younger generation isn't there." They questioned whether future professionals would possess the problem-solving instincts and hands-on experience that have long underpinned successful project delivery.

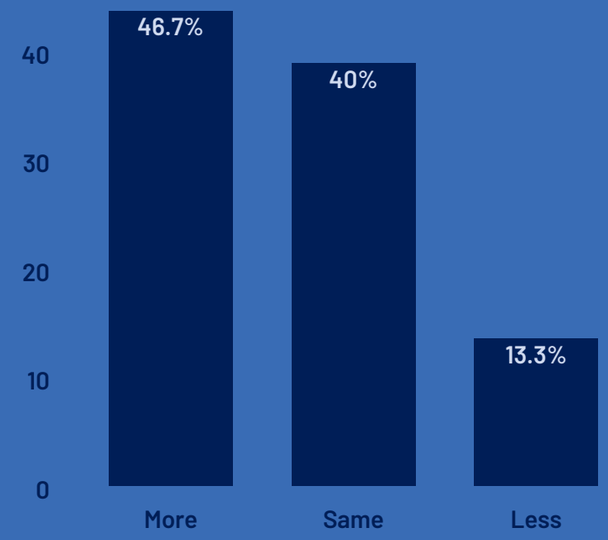
> Is AI going to erase what makes us successful in our jobs; is it already wiping away the critical thinking skills that we need?
>
> **Marco Poisler, UTC Overseas**

The long-term risk is an over reliance on tools like ChatGPT that could erode resilience and critical thinking.

At the same time, humans are skilled at adapting to our surroundings, and deploying the latest digital tools could transform project logistics into a high-tech, high-skilled industry that would lure the next generation. Workforces are already restructuring, with smaller teams managing larger project portfolios and senior leaders overseeing multiple jobs at once.

Project Uncertainty Today Compared with April 2025

Q: Compared with last April, would you say there is more uncertainty, less uncertainty or about the same level of uncertainty for projects as a result of U.S.policy?



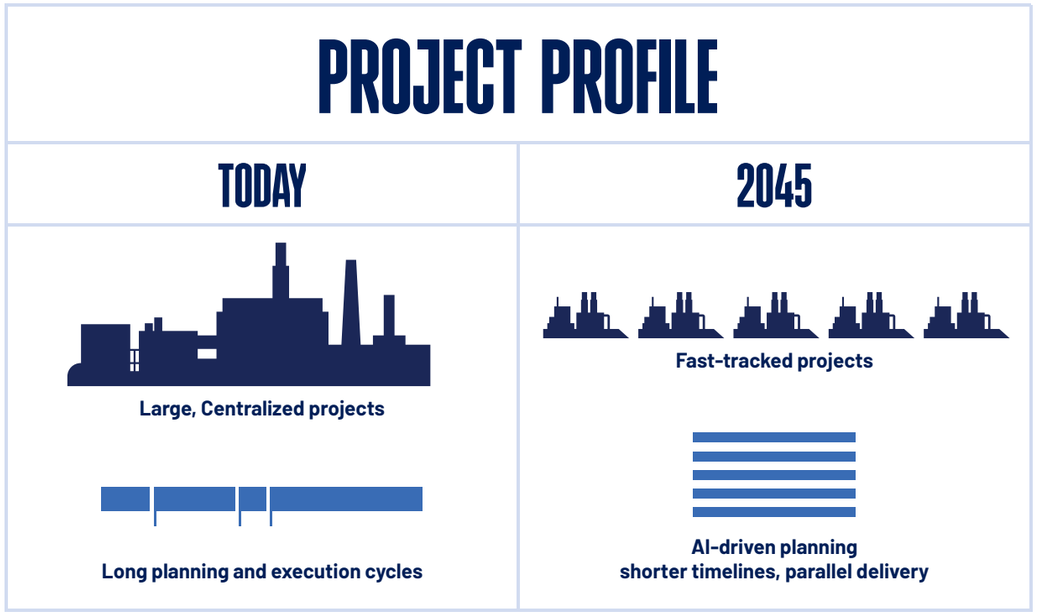
Geopolitics and policy volatility add further complexity. Participants highlighted how quickly political shifts can reverse major investments in renewables, decarbonization initiatives or mining, making long-term project planning extremely difficult. Many companies are responding by diversifying portfolios and developing internal working groups to monitor geopolitical change as closely as market fundamentals.

Scenario planning will become even more critical as linear thinking proves insufficient in an era where energy strategies and supply chains are continually in flux.

Despite these challenges, the discussion concluded with cautious optimism. Cross-sector collaboration between industry, government and academia will be vital to creating stability, accelerating innovation and ensuring policy frameworks last long enough for investment to make sense. Technology will undoubtedly make work easier and more productive, but the industry must plan for moments when those systems fail, and human judgment must step in.

> Mitigating risk is having the ability to adapt to a constant changing environment, whether it's geopolitical or otherwise, and being able to diversify.

Steve Hill, McDermott



> I see a future of much smaller projects, much more nimble projects, with quick ROI, and using electrons more than molecules.

Sri Vaidyanathan, Shell

KEY TAKEAWAYS

- Projects will become smaller, faster and more modular, **driven by AI**, electrification and the need for quicker returns on investment.
- **Technology will reshape** how work is done, not remove the need for expertise.
- **The talent challenge is structural,** not cyclical, requiring new approaches to training, retention and early-career development rather than large-scale hiring.
- Success in 2045 will favor a**daptable organizations that combine digital capability with cross-sector collaboration** and consistent risk management frameworks.

Image Credit: UTC Overseas

WORK GROUPS

LOGISTICS & SUPPLY CHAIN

In this group:

Jonathan Cournoyer,
Global Discipline Director, Logistics, Hatch

Frank Guzman,
Senior Director, Project Logistics Global, C.H. Robinson

John Hark,
Director – Bertling North America, Bertling

Mohammad Jaber,
CEO, Combi Lift Projects MEA

Samira Gadouchi,
Logistics Lead, Middle East, McDermott

Themes:

The Logistics & Supply Chain work group pointed to how automation and advanced manufacturing solutions are expected to reshape project logistics over the next two decades, though adoption will vary by region. Modularization and 3D printing will enable lighter, smaller, and more adaptable components, reducing on-site labor and improving safety.

Several participants noted that 3D printing is becoming essential for avoiding long delays caused by missing or damaged parts. These changes raise questions about future transport needs: will the sector continue to rely on large vessels, aircraft and SPMTs, or will smaller components reduce demand for heavy-lift transport equipment?

The nature of project cargo is set to evolve alongside broader industrial and energy transitions. While heavy industry and refinery-related equipment will remain important, a shift toward circularity and recycling will diversify cargo types.

At the same time, growing AI-driven energy demand may introduce new technologies or alternative energy sources that require different logistics footprints.

Yet the sector faces a paradox. Even as some components shrink, others such as wind blades, battery systems and modular units are getting larger. Advances in chemistry and AI-enabled process optimization could also lead to more efficient catalysts and smaller processing facilities, further altering cargo requirements.

> We're thinking more about lighter, smaller pieces, but heavy industry is not going to disappear within 20 years.
>
> **Samira Gadouchi, McDermott**

87%

of Future Thinkers agree trade lanes, country-to-country relationships or cross-border project flows are changing, citing...

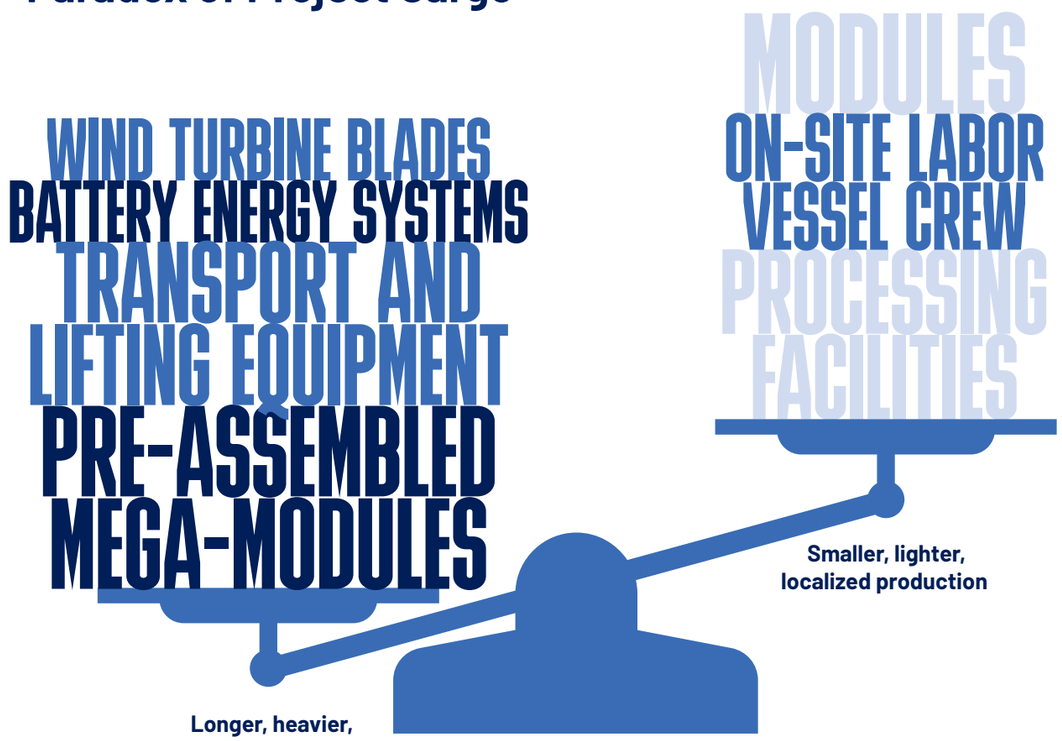
- Korea to US; China to Australia; SE Asia to NorthAmerica
- Global supply chain is more likely to add India, Vietnam and Indonesia as China+1 Strategy
- Looking for alternatives to trading with U.S.
- Rise in near-shoring, domestic manufacturing; stability may outweigh higher costs

Transport technologies will continue advancing, with vessels becoming faster and more efficient and gradually moving toward remote or autonomous operation. Reduced crew requirements could significantly lower operating costs. More sophisticated planning software will also play a key role, enhancing routing, loading optimization and warehouse operations.

Collaboration emerged as a critical enabler of future progress. With the pace of change accelerating, industry participants stressed the need for deeper cooperation across sectors, academia and government. They highlighted the value of open experimentation and the potential for Amazon marketplace-style logistics platforms. Coupling the industry's inherent complexity with new technologies could also help attract new entrants.

> How do we bring in new entrants into the industry? How do we make it exciting? For me, project logistics is already exciting, but if we can couple that with technology and AI and this new force behind us, that would really drive new entrants into the business.
>
> **Frank Guzman, C.H. Robinson**

Paradox of Project Cargo



KEY TAKEAWAYS

- **Modularization** and 3D printing are driving smaller, lighter components, while wind, batteries and large modules continue to push size limits.
- **AI, new energy systems** and **process innovation** will reshape what needs to be transported and how.
- Amid an industry in flux, the need for **deeper cooperation across sectors**, academia and government will be crucial.

A CONTINUOUS GLOBAL CONVERSATION

Future Thinkers is not a one-time summit, but the launch of a continuous global dialogue designed to equip the Breakbulk community with actionable foresight. Regional meetings will convene the brightest minds from each market to test initial Houston findings against local realities, emerging trends, and fast-changing conditions.

After each session, an addendum to the 2026 Future Thinkers Guidance will be released, delivering fresh insights and strategic updates directly to Breakbulk event attendees, partners and the wider project cargo community.

FUTURE THINKERS 2026 SCHEDULE

Feb 4–5, 2026
Middle East Regional Meeting
Dubai, UAE – Breakbulk Middle East
middleeast.breakbulk.com

June 16–18, 2026
Europe Regional Meeting
Rotterdam, Netherlands
– Breakbulk Europe
europe.breakbulk.com/home

Sept 22–24, 2026
Americas Regional Meeting
Houston, USA – Breakbulk Americas
americas.breakbulk.com/home

Annual Global Summit
To be held in conjunction with
Breakbulk Americas

Nov 18–19, 2026
Asia Regional Meeting
Singapore – Breakbulk Asia
asia.breakbulk.com

For more information, visit
breakbulk.com/page/future-thinkers

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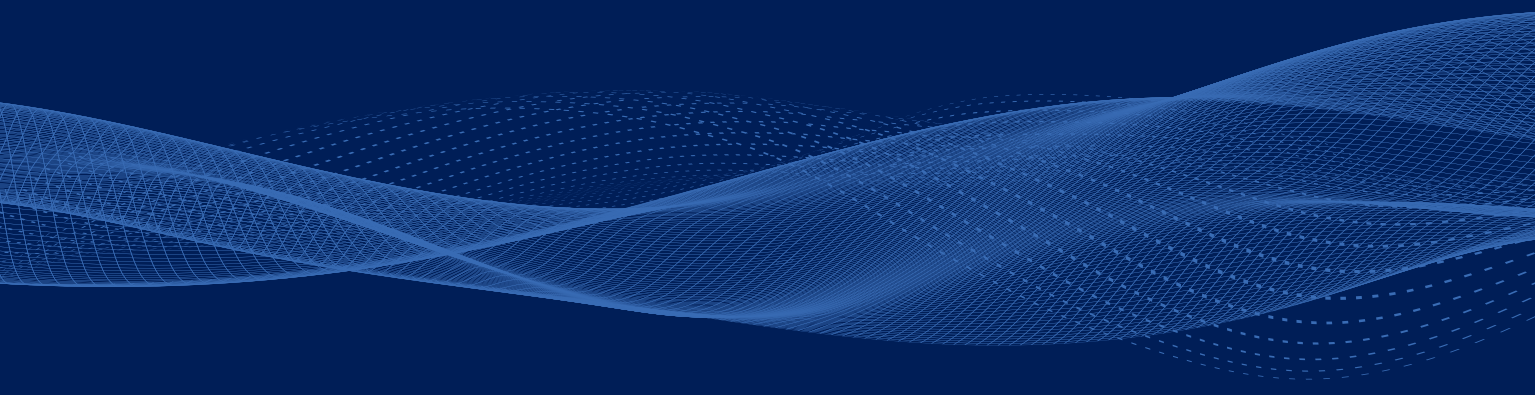

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