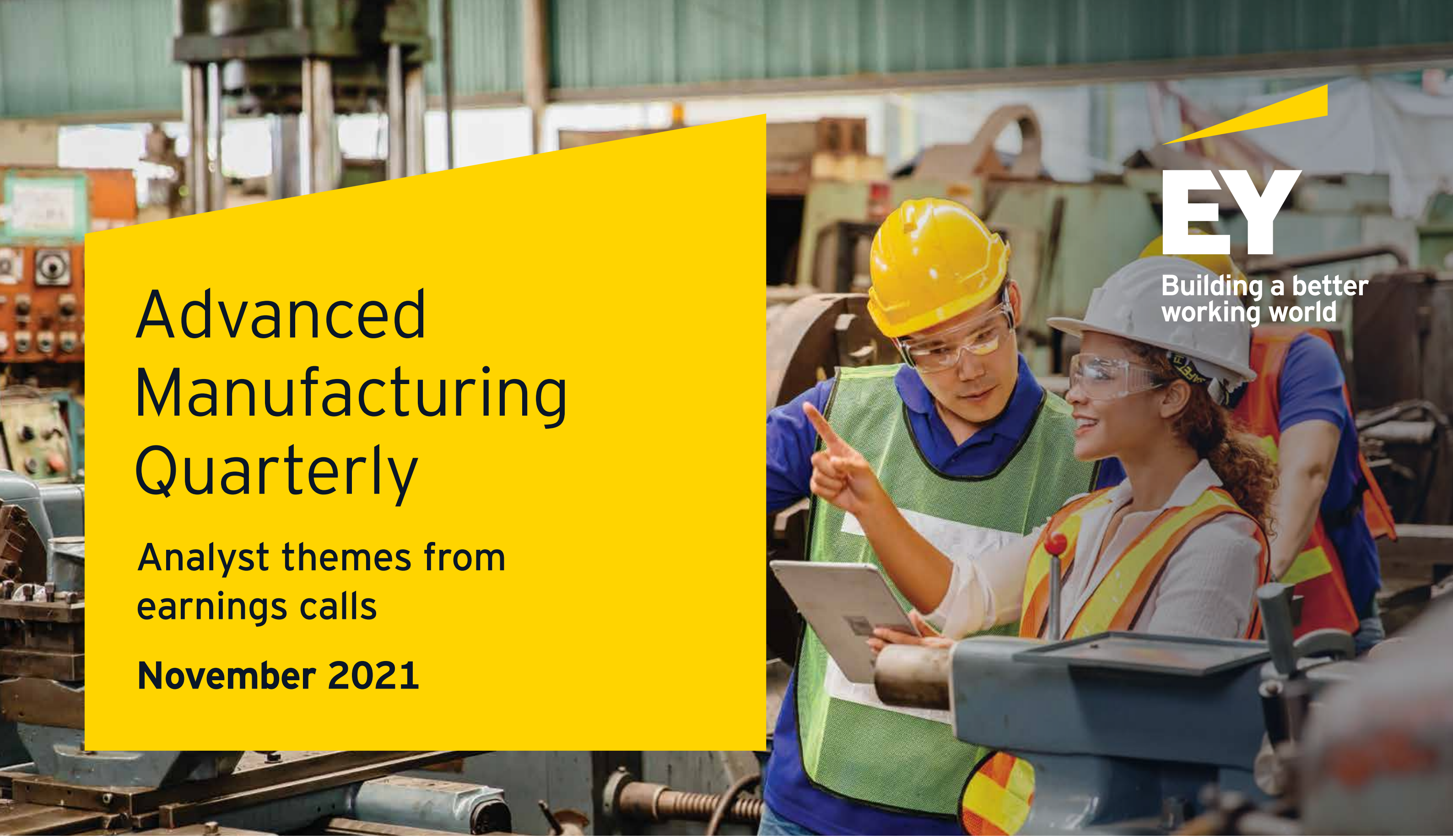

Advanced Manufacturing Quarterly

Analyst themes from earnings calls

November 2021

In the wake of one disruption after another, advanced manufacturing (AM) companies are realizing that complex, fragmented and siloed business models and supply chains have become a threat to business continuity. They are reaching an inflection point to build the next generation of sustainable, agile and resilient organizations. Hence, an increasing number of companies are undertaking measures to attain these goals and enhance human productivity, supply chain visibility and profitability.

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Manufacturers are adapting to the waves of disruptions by delivering on three priorities: sustainability, transparency and resiliency

Welcome to the quarterly review of key themes discussed by leaders of 31 AM sector companies (including those from the aerospace and defense (A&D), industrial products (IP), and chemicals subsectors) during public earnings calls with analysts in October and November 2021. This edition tracks the movement of the top five market forces and company responses from quarter to quarter to provide a perspective on shifts in the AM landscape.

Market forces and company responses that stood out include the following:

- **Operating costs are emerging as a significant market force.** Skyrocketing variable costs fueled by raw material shortages, a long-lasting surge in transportation costs and a talent shortage are impacting margins and cash flows at a time when manufacturers are already struggling to cut costs. Even when prices are increased, many manufacturers continue to endure revenue losses in the range of $300 million to $500 million for 3Q21 and are predicting similar headwinds for 4Q21. Apart from revising prices, many peers are implementing operational improvements via productivity playbooks, and Lean and Kaizen frameworks to increase efficiency and minimize headwinds.
- **Supply chain reinvention is emerging as a significant company response.** Demand upsurge, coupled with raw material shortages and congested ports, is leading to significant disruption in production schedules. AM companies are undertaking numerous initiatives to rethink their sourcing strategies and operating models. They are collaborating with customers and distributors for better visibility, contracting alternative suppliers, implementing new pricing strategies and signing long-term contracts.

Jerry Gootee
EY Global Advanced Manufacturing Sector Leader

Top five market forces

	3Q21			2Q21
↔	1.	Demand patterns	1.	Demand patterns
↑	2.	Value chain breakdown	2.	Investors
↓	3.	Investors	3.	Sustainability initiatives
New	4.	Operating costs	4.	Public health
↓	5.	Sustainability initiatives	5.	Value chain breakdown

1 ↔ Demand patterns

Trends in key customer segments and regions impacting demand for products and services

- Companies expect year-over-year double-digit growth driven by robust spending on new opportunities of smart and healthy infrastructure, recovery in oil and gas, and a move toward renewable energy.
- Almost all regions are witnessing robust growth, with North America leading, while mixed patterns are being observed in Asia (owing to the real-estate liquidity crisis, power shortages in China and supply chain constraints) and Europe (due to an increase in COVID-19 cases in the UK and Germany).
- Aerospace peers are also witnessing recovery in demand and are expected to complete much higher aircraft deliveries in 4Q21. On the contrary, activity in the defense market is expected to be soft, primarily owing to supply constraints.

2 ↑ Value chain breakdown

New supply chain constraints and supplier failure disrupting production schedule

- Continuing raw material shortages and transportation bottlenecks, coupled with disruptions due to natural disasters (Hurricane Ida in the US), are adversely impacting production plans, financial outlooks, product pricing and customer relationships.
- Peers are enduring significant financial headwinds, which are much higher than previous quarters, with sales of multiple manufacturers impacted in the range of $300 million to $500 million for 3Q21 and are predicting similar headwinds for 4Q21.
- Peers with multi-tiered supply chains, especially A&D, are likely to take more time to recover from the disruptions compared with chemicals and industrial products peers.

3 ↓ Investors

Investor expectations for improved financial performance

- The time lag between passing on the increased prices to customers and raw material inflation is adversely affecting profit margins. However, pricing actions, coupled with productivity improvement initiatives, are expected to improve margins in the coming quarters.
- An increase in working capital due to growth in customer demand and supply chain challenges are affecting cash positions for a few peers; however, most peers are generating robust cash flows enabling them to repurchase shares, increase dividends, reduce debt and pursue strategic opportunities.
- Cash conversion rates, which compare operating cash flows to profitability, are improving and were above 100% for most peers, with one industrial products peer witnessing its highest ever cash conversion at 123% for 3Q21.

4 New Operating costs

Gains or losses related to operating costs, including raw materials, currency, energy and talent

- Higher variable costs fueled by raw material shortages, a long-lasting surge in transportation prices and rising talent costs are impacting cash flows at a time when manufacturers are already struggling to cut costs.
- AM companies, especially those that are export dependent, are facing severe headwinds with many witnessing unprecedented delays and doubling of transportation costs.
- Apart from revising prices, many peers are implementing cost discipline and productivity playbooks to increase efficiency and minimize headwinds.

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Given the waves of disruption ahead, operational resilience needs to be a priority every day, not just in times of crisis, to meet changing expectations and minimize potential impacts. End-to-end visibility, simulations and risk monitoring equip organizations to step-change their resilience — to better anticipate issues, mitigate their risks, and also offer road maps for seizing the opportunities within them.

Matthew Burton, EY EMEIA Consulting Center Partner and Digital Operations Leader

5 ↓ Sustainability initiatives

Sustainable product and operations, decarbonization and circular economy

- Manufacturers continue to position sustainability as a centerpiece in their growth strategies and operating models, driven by an urgency to meet decarbonization and stricter sustainability reporting guidelines.
- AM peers are seeing the recently concluded United Nations climate change conference (COP26) as a tipping point to scale the necessary clean technologies.
- Hence, to accelerate the transition to a low-carbon economy, peers are developing more energy-efficient, sustainable and connected products, such as net-zero connected buildings, recycled feedstocks, aero engines with sustainable fuels, hydrogen propulsion systems and electric aircraft.

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Corporates should better understand the disclosure elements of ESG reporting; make strategic use of the sustainability function to help inject rigor into the process to determine the materiality of their ESG context; engage with, and embed, the finance function to consider and align financial and value implications; and deepen engagement with investors to differentiate itself from competitors.

Mathew Nelson, EY Global Climate Change and Sustainability Services Leader

Top five company responses

3Q21		
↔	1.	Change in financial outlook
↑	2.	Competitive positioning
↓	3.	Business reorganization or restructuring
New	4.	Financial or capital strategy
New	5.	Supply chain reinvention

2Q21	
1.	Change in financial outlook
2.	Business reorganization or restructuring
3.	Competitive positioning
4.	Product design and innovation
5.	Working capital and cash flow management

1 ↔ Change in financial outlook

Changing forecasts for revenues, margins or earnings per share

- For most peers, despite accounting for strong headwinds caused by supply chain and cost disruptions, the overall financial outlook remains positive.
- Cost reduction and restructuring initiatives (productivity and pricing actions, and acquisitions and divestments) are yielding results with many peers expecting robust double-digit growth in profits, translating into hundreds of millions of dollars in margins for 2022.
- Recovery in end markets, coupled with digitization and product innovations, will drive robust organic sales growth (high single digits to low double digits) in 2022.

2 ↑ Competitive positioning

Market share, new division and brand launches, pricing strategy, and speed to market

- AM peers are closely monitoring and evaluating their product pricing strategy to account for rising costs. Many are implementing data-based dynamic pricing to maintain margins.
- Many peers, especially chemicals, are targeting growth via expansion in untapped end markets (life sciences) and geographies, while others are pursuing the inorganic route to capture market share in emerging areas, such as electric vehicles, data analytics, autonomous mobility and sustainable buildings.
- To increase customer centricity, peers are closely working with customers to help them achieve their sustainability and profitability goals. One industrial products peer established exclusive production facilities co-located near customers.

3 ↓ Business reorganization or restructuring

Transforming company structures to meet strategic goals and market demands

- AM peers are maintaining a tight grip on cost structures while they streamline supply chains and increase the share of high-margin services and software for a sustainable improvement in margins.
- Operational improvements such as standardizing processes via productivity playbooks, and implementing Lean and Kaizen frameworks, are helping reduce costs and offset headwinds from material inflation and supply disruptions.
- Several peers are simplifying organization structures by divesting non-core businesses and continuing to decentralize business units to improve accountability and ownership.

4 New Financial or capital strategy

Capital management and deployment

- Multiple acquisitions were announced in 3Q21 and more are being planned to enhance technological capabilities and expand reach in new end markets, especially in life sciences, which is emerging as a strategic growth pillar for the sector.
- However, many companies are actively engaged in multibillion-dollar share buybacks and dividends, owing to lack of opportunities and inflated valuations.
- Significant increases in capital expenditures are being planned in the coming quarters as peers look to launch new offerings, capitalizing on the trends of sustainability and digital transformation.

5 New Supply chain reinvention

Measures to support sales growth, become more cost-competitive, minimize risk and improve operational resilience

- As material shortages and supply chain issues are expected to endure through 1Q22, many peers are implementing mitigation strategies, such as collaborating with customers and distributors for better visibility, automating production to increase utilization, contracting alternative suppliers, and implementing price hedging and long-term contracts.
- Many peers are setting up dedicated teams for negotiating with suppliers and using digital tools, such as predictive analytics, to minimize raw material and pricing disruptions.
- Inventory levels are also being increased as multiple manufacturers look to hedge disruptions arising due to price volatility and material shortages.

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In the wake of the pandemic, supply chain leaders need to place priority on resiliency and agility, sustainability, and traceability. Luckily, these issues are interdependent. Leaders should focus on these questions: can you see through the whole of the supply throughout your tiers, and can you adapt when the inevitable disruption starts to shake your supply chain?

Cate Mork, EY US Supply Chain Sustainability Lead

Companies included in the analysis

The identification of the top market forces and company responses is based solely on an examination of earnings calls held in October and November 2021.

- ABB Ltd.
- Airbus SE
- Albemarle Corporation
- BASF SE
- Boeing Company
- Bombardier Inc.
- Carrier Global Corporation
- Danaher Corporation
- Dow Inc.
- Dupont De Nemours, Inc.
- Eaton Corporation plc
- Ecolab Inc.
- Flowserve Corporation
- FMC Corporation
- General Electric Company
- Honeywell International, Inc.
- International Flavors & Fragrances, Inc.
- International Paper Company
- Johnson Controls International plc
- Linde plc
- Lockheed Martin Corporation
- LyondellBasell Industries NV
- Mitsubishi Chemical Holdings Corporation
- Northrop Grumman Corporation
- Olin Corporation
- Otis Worldwide Corporation
- PPG Industries, Inc.
- Raytheon Technologies Corporation
- Siemens AG
- Textron Inc.
- The 3M Company

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