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TRENDS
REPORT

Intersecting Sustainability:

ESG and Smart Manufacturing Trends

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The convergence of smart manufacturing with the rise of ESG (Environmental, Social, and Governance) frameworks is supporting industry sustainability efforts to create and protect value for companies and stakeholders.

In the summer of 2019, Business Roundtable stated that although companies have their own unique purpose, they all "share a fundamental commitment" to all of the corporation's stakeholders. Under the new stakeholder umbrella, the Business Roundtable identified many essential stakeholders: customers, employees, suppliers, communities, and shareholders. The elevation of the ESG frameworks combined with CEO action is driving questions about what ESG is and how it intersects with a corporation's purpose, actions, and sustainable practices.

At the same time, manufacturers are undertaking smart initiatives and realizing productivity gains[1] from new technologies and processes. Smart factory initiatives can help companies capture and better communicate the value of their sustainable business practices, such as optimizing energy consumption and tracking, supporting safe behaviors, driving competitiveness, and transforming product development.

Manufacturing leaders have an opportunity to seize on these trends by starting small. Indeed, many are still getting started. This analysis spotlights sustainability to address three questions:

1. **What is the practical difference between ESG and Sustainability?**
2. **How is ESG supporting Sustainability?**
3. **How is smart manufacturing supporting Sustainability?**

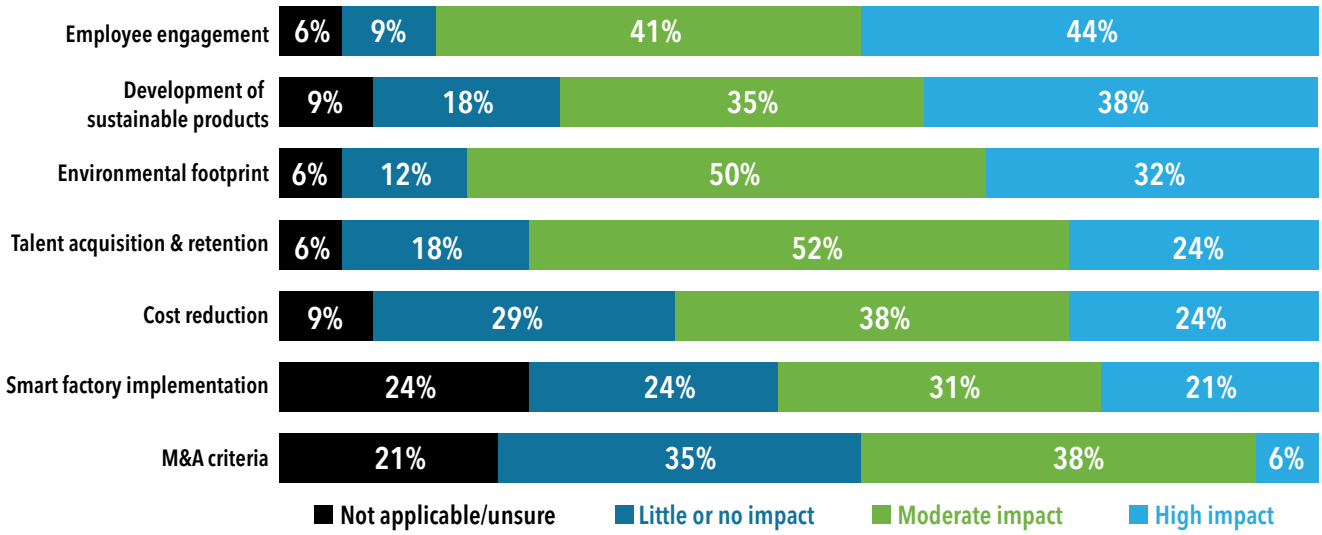
1. Defining the difference between ESG and sustainability

ESG is a set of frameworks used to assess the impact of a company's sustainable and ethical practices on its financial performance and operations. It groups specific company actions into three categories to provide a structure to measure and report progress. These categories provide insight into company actions that can be shared internally to drive improved performance and reported externally to tell a complete story about the company. While to some it might seem that calls and questions from investors around ESG are a "check-the-box" exercise, it is increasingly used to assess issues affecting long-term performance.

Sustainability is an arguably broader term under which ESG fits. Sustainability captures the many actions taken to ensure human longevity. The UN World Commission on Environment and Development defines it as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." This often means taking long-term action and adopting practices to support it, such as recycling, conservation, and transparency. It has been challenging to translate what sustainability means for businesses specifically. To many, it seems "squishy," full of well-intentioned action but divorced from the realities of operating and difficult to quantify. Companies have taken up the challenge however and implemented plans to reduce their carbon footprint, improve transparency around the health of materials, and plan for product end-of-life in product development. Moreover, manufacturers expect their sustainability efforts to advance business objectives. Key among these are employee engagement (85%), talent (76%), and product development (73%). Nevertheless, there is still room for manufacturers to better understand how sustainability efforts can help drive value in other areas such as cost reduction, M&A, and smart factory implementation.

Manufacturers expect sustainability efforts to advance business objectives

Please rate the impact you anticipate your company's sustainability efforts will have in the following areas over the next 3 years. (n=34)



Over the last several years, external sustainability reporting by companies has increased.[2] As investment in this area grows companies must bring together a cross-functional team of HR, sustainability, ethics, investor relations, and operations leaders to develop a common language that relays what the company is doing well and articulates its opportunities for improvement. Disclosing this information demonstrates that the company has a handle on issues material to their business and will attract long-term investment. All too often third-party "grades" are assigned based on incomplete or even incorrect information. By taking the reins, the company can control the accuracy of the narrative; connecting the dots for the investors evaluating the company between its actions and ESG efforts.

2. The growing value of using an ESG lens to focus on sustainability's value creation

ESG includes stealth areas such as inequality, climate risk, quality, safety, diversity, and ethics, which put companies at risk and can affect their bottom line. Research links[3] high ESG ratings with higher profitability, higher dividend yield and decreased business risks, less volatility, and higher valuations. ESG indicators may therefore be useful financial indicators of company performance and of a sound investment. This further underscores the potential power of ESG ratings, why these should matter to companies, and how investors will use them: higher scores reflect better management of risks and opportunities by companies.

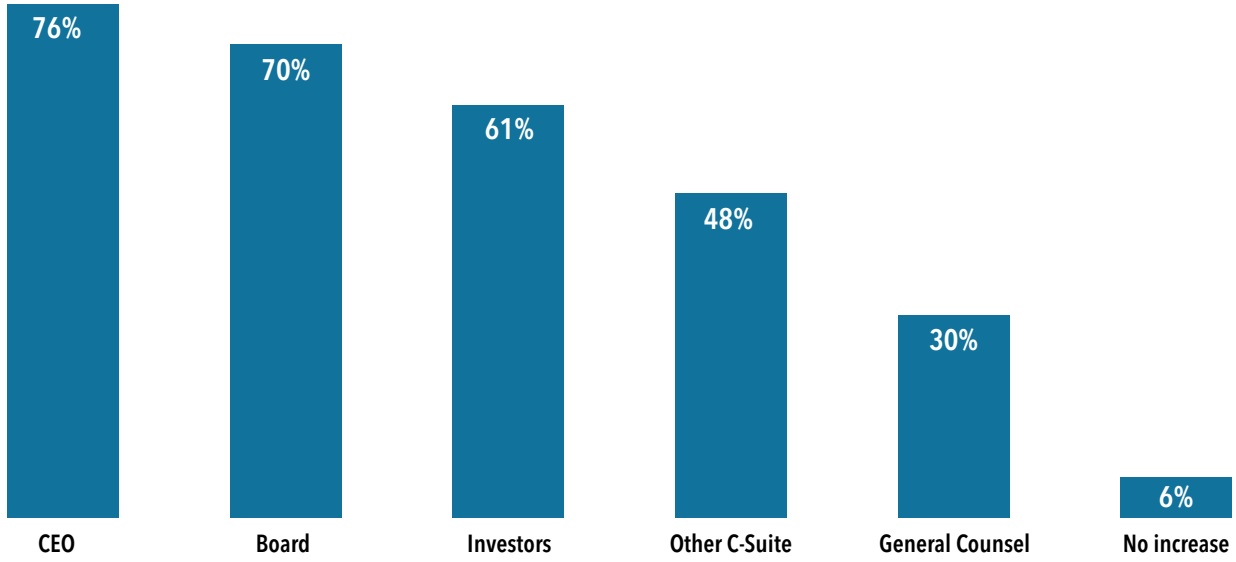
Over the last few years, the drumbeat for more information on company actions (and therefore risks) has become steadier and steadier. In 2018, BlackRock sounded a loud beat. In an open letter,[4] BlackRock's CEO Laurence D. Fink asked other company CEOs to think differently about the roles companies play in the community. The letter emphasized the changing role companies play as problem solvers in society, bringing Fink to conclude that for companies to "prosper over time, every company must not only deliver financial performance, but also show how it makes a positive contribution to society." What he outlines in his letter echoes comments from other CEOs, including Apple's Tim Cook,[5] "I think we have a moral responsibility to help grow the economy, to help grow jobs, to contribute to this country and to contribute to the other countries that we do business in." Business Roundtable CEOs similarly redefined corporate purpose[6] by unequivocally stating companies share a commitment to all its stakeholders. This marked a definitive step away from their statement nearly a quarter-century ago, which crystalized the corporation's paramount duty to its stockholders.

These facts combined should sound the alarm: company inaction will inhibit future growth given the change in the social contract between companies, investors, and society. Companies are now being asked to deliver value to customers, invest in employees, deal fairly and ethically with suppliers, support communities, and generate long-term value for shareholders. They are being asked to consider and report performance beyond quarterly financial numbers, tying company actions to ESG factors linked to sustainability issues. Manufacturers report increased internal and external interest on company ESG efforts.

When asked if interest from the C-Suite, Board, or investors on ESG increased over the last 3 years, 94% of sutainability leaders responding to a MAPI poll reported an increase. In keeping with the growing trend for CEOs to speak out on social responsibility, we see manufacturing CEOs have demonstrated the greatest interest in this area followed closely by Boards.

Interest in ESG is growing among company leadership

Which of the following stakeholders has demonstrated an increased interest in your company's efforts regarding ESG factors during the last 3 years? (n=33)



Consequently, companies should use their sustainability efforts in a purposeful way. In addition to philanthropy, companies should see sustainability as a way to invest in and shore up operations by evaluating governance, risks, people, processes, and the value chain. By connecting all the dots, evaluating ESG factors goes far beyond a check-the-box exercise and sustainability efforts become more than "feel good." Together these generate an opportunity to re-set and recalibrate to ensure the company is there for the long-term, not just the next quarter.

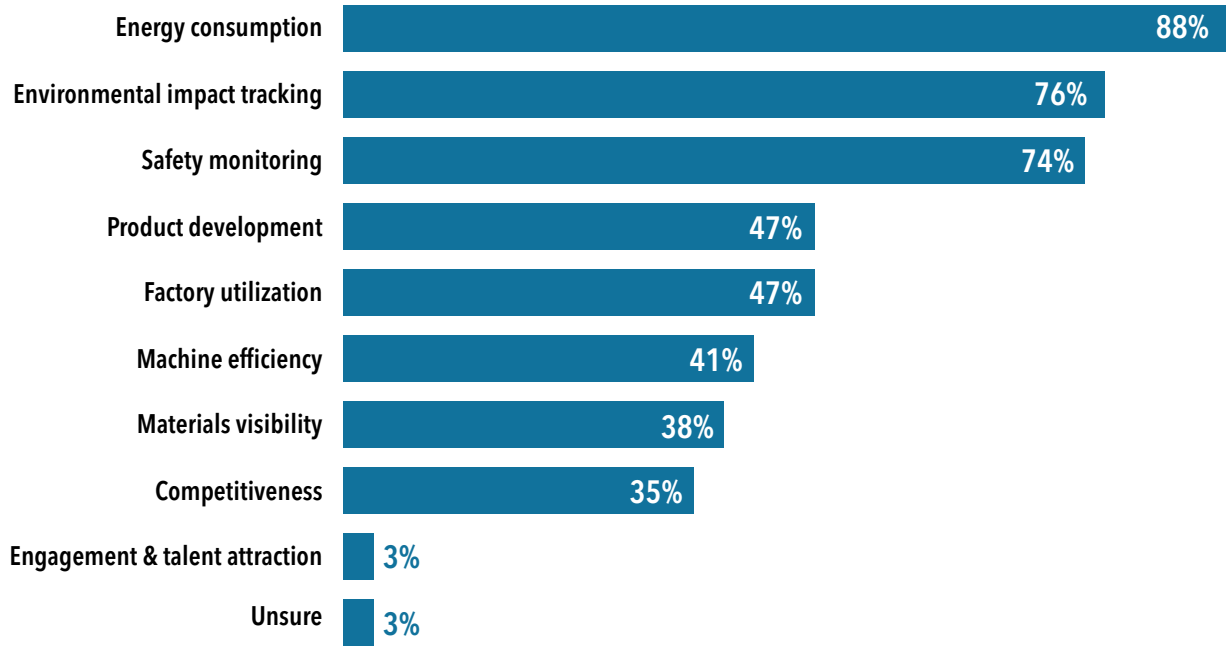
3. Extracting Business Value from Smart Factory and Sustainability

The Fourth Industrial Revolution promises improved outcomes by connecting machines, people, data, and value chains. This has prompted widespread digital initiatives across manufacturing with the aim of improving efficiency and gaining useful insights into operations. The introduction of IIoT (Industrial Internet of Things) further advances these aims by connecting devices and adding sensors to build smarter and more efficient spaces to improve capabilities and performance. The move towards a smart connected factory is the bedrock of future competitiveness. What's more, smart factory's proposed value is tied to functions across manufacturing because of its potential to improve safety, increase efficiency, reduce errors, and track resource intensity, to name a few.

A MAPI and Deloitte study[7] found smart factory initiatives led to 10-12% gains in efficiency, utilization, and productivity for manufacturers. These added efficiencies and capabilities can also enhance company sustainability efforts. In addition to supporting business objectives, manufacturers expect sustainability efforts to further outcomes tied to environmental impact and safety. This seems reflective of sustainability efforts often beginning within EH&S functions. However, just over a third believe sustainability can also support business outcomes such as materials visibility (38%) and competitiveness (35%). Close to half are beginning to believe their efforts can support outcomes tied to their operations, such as factory utilization (47%) and machine efficiency (47%). This trend of realizing sustainability's capability to drive outcomes outside of environmental impact can be further accelerated through specific use cases in the smart factory.

Manufacturers are beginning to realize sustainability efforts can support operations and business outcomes

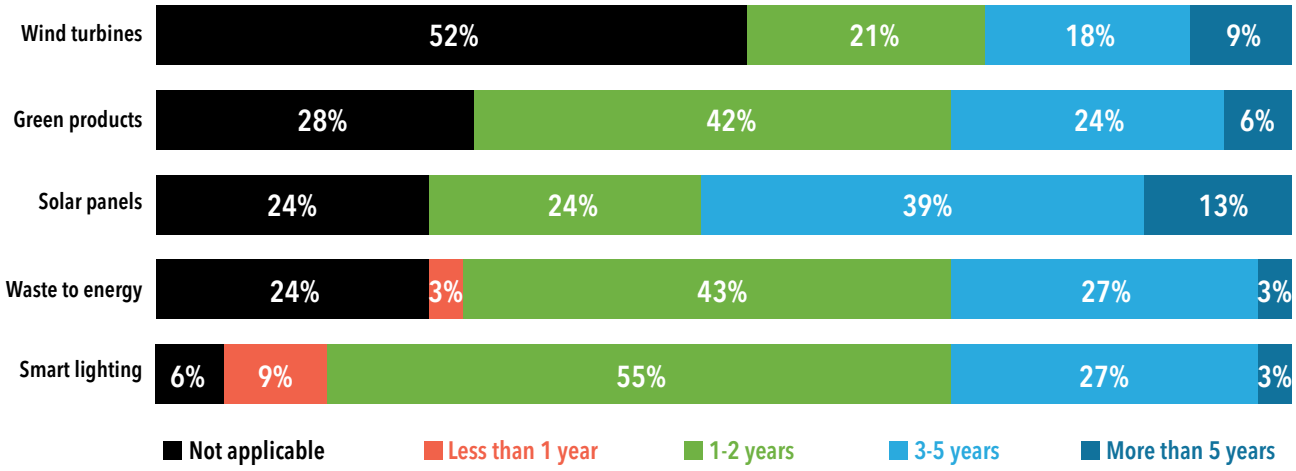
Which of the following outcomes do you believe your company's sustainability efforts will support over the next 3 years? (n=34)



Despite making strides in GHG (greenhouse gas emissions) reduction through programs such as EPA's Energy Star[8] and the DOE's Better Buildings initiative,[9] industry is still responsible for close to a third of greenhouse emissions (when accounting for both direct and indirection emissions from electricity). This makes it the largest contributor to U.S. greenhouse emissions.[10] While emissions cannot be completely eliminated, smart factory initiatives can help companies improve by tracking and monitoring emissions and introducing alternative processes. These can determine when an area is in use and reduce lighting, or through a smart grid system sense energy use and "smartly" distribute power supply according to predetermined thresholds. Use cases such as these have broad acceptance and the timeframe to show ROI generally falls within the 1-2 year mark.

ROI timelines for sustainable investments remain tight

In general, what is the time frame sustainability executives have to prove ROI for the following investments? (n=33)



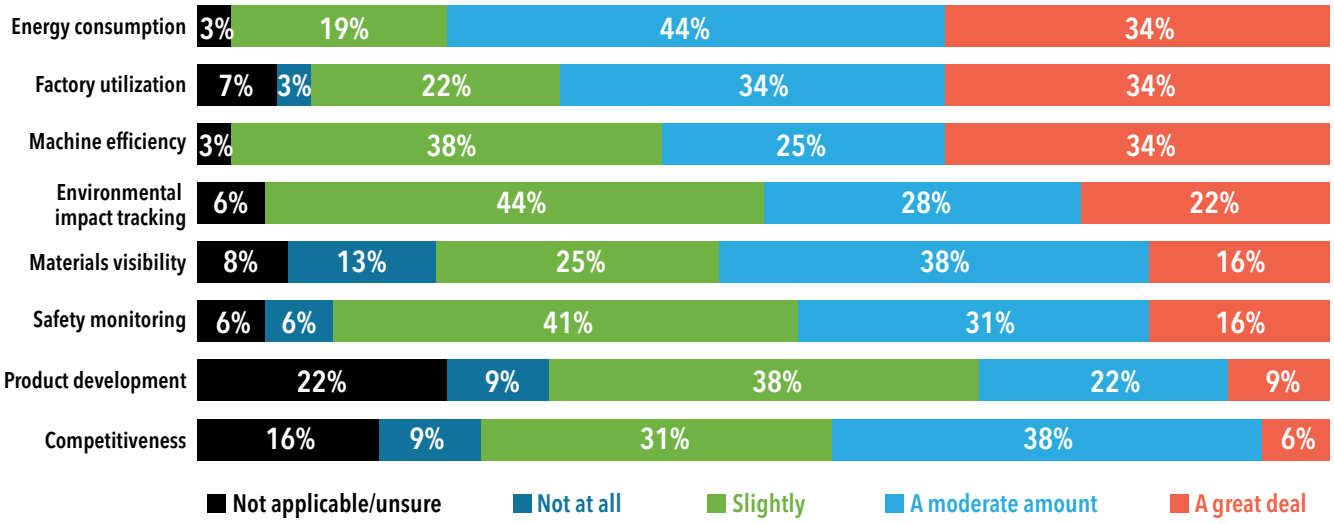
Sustainability professionals within manufacturing have long tried to make the business case for incorporating solar panels and other renewable energy conduits into capital expenditures. A recent Deloitte study[11] indicates two thirds (64%) of manufacturers plan to transition to more renewable sources of energy in the next five years. However, proving ROI has always been a high hurdle for manufacturers to overcome given short windows. Smart factory initiatives can help accelerate results by enabling better data integration and improved analytics to better capture benefits.

Aside from energy, smart factory initiatives can help with predictive maintenance, ensuring machines are serviced regularly, are cooled when they run too hot, and other forms of preventative maintenance that cuts down on wear and prevents machines from breaking and having to be replaced. Processes that were once labor or resource intensive can be revised to deploy resources more safely and efficiently, such as incorporating augmented reality (AR) into training. The benefits of smart factory can extend to include stakeholders beyond the factory walls. For those embarking on a circular economy journey, smart factory can not only help track materials use and waste but also create the opportunity and ability to exchange data between different points to further advance these goals. The connectivity provided by smart factory can provide further benefits to stakeholders like suppliers by reducing transportation costs, improving on-time delivery, and shrinking error rates.

If sustainability in manufacturing is about capturing value for all stakeholders through processes and practices that promote smarter consumption of resources and innovative products with an eye towards creating long-term value, then smart factory's added capabilities will enhance those efforts.

Smart factory initiatives can spur sustainability measures

To what extent do you believe smart factory initiatives will improve the following sustainability measures over the next 3 years? (n=32)



The transformative effects from smart factory can provide further color to the company's sustainability story especially when reported externally to investors.

The last several years have seen the rise of two separate but potentially transformative forces for sustainability: ESG frameworks and smart factory initiatives. Each provides insight into company actions, measures results from efforts and quantifies impact. ESG provides a lens to more effectively communicate, internally and externally, the value created by sustainability efforts.

Smart factory initiatives can become part of the fabric of a company's digital transformation but can also be woven into the company's sustainability efforts given its capability to track outcomes, provide feedback and connectivity to efforts on a scale not possible before. Coupled together, ESG and smart factory can help embed sustainability efforts into business strategy to help to identify corporate risks and generate new product ideas, delivering revenue and long-term value for all stakeholders.

Sources

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[11] "Moving organizational energy use toward 100 percent renewables–aspiration or destination?" Deloitte Insights. 2 October 2019

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ABOUT MAPI

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