

KEEPING UP WITH
PRODUCT
PERFORMANCE
REQUIREMENTS

EWI[®]

We Manufacture Innovation

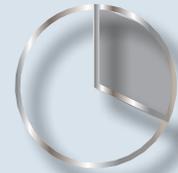


STAYING AHEAD OF THE MANUFACTURING REVOLUTION

THE FAST PACE

of technological advancement coupled with increasing consumer and regulatory demands is placing manufacturers under more pressure than ever to design and develop innovative products. Across every industry, companies are striving to make products that are lighter, stronger, energy efficient, and more reliable to stay competitive and meet the needs of an evolving market.

According to a global survey of manufacturers:



32% cite new product development and R&D as a top priority¹



41% say their primary strategy for innovation is to pursue breakthrough advances²



LIGHTER, STRONGER,
MORE POWERFUL, MORE
ENERGY EFFICIENT, SAFER, MORE
RELIABLE, MORE COMPETITIVE



IMPLEMENTING DISRUPTIVE TECHNOLOGIES

Advancing and emerging technologies can contribute to disruption in the marketplace and prompt the development of new products, but incorporating them into production can prove challenging.

Technological innovation strongly influences the competitive landscape, so manufacturers must overcome technical challenges to deliver the sophistication that the market demands.

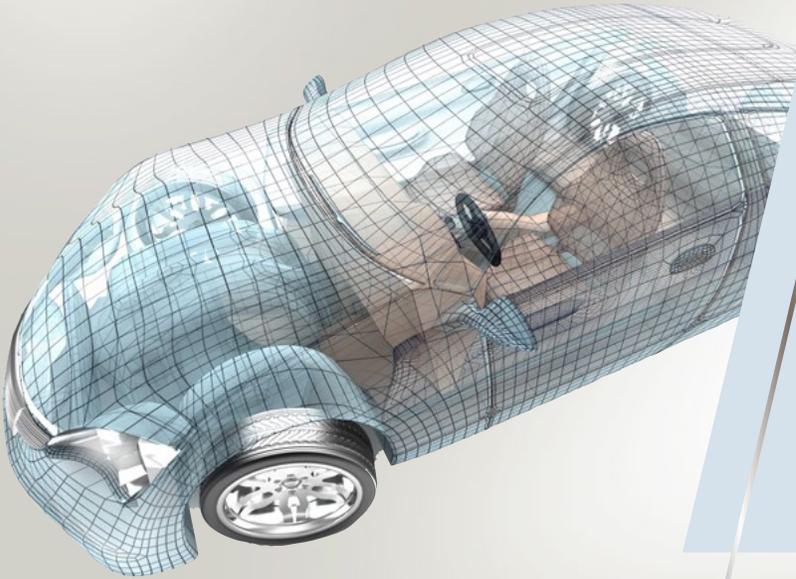
EXPLORATION INTO SEVERE ENVIRONMENTS

As oil and gas production advances into harsh environments like the Arctic, advanced technologies are required to minimize the potential for structural failures. Higher strength steels and improved fracture toughness performance are some examples of industry needs.



MEETING RISING DEMANDS

Changing consumer demands and stricter regulations are the primary drivers of increased product performance requirements. Consumers look for products that take their wants and needs into account—products that are more affordable, more reliable, and more personalized. Governmental regulations require that products be safer and more sustainable. Manufacturers must take into account a multitude of factors during R&D and production.



THE CAR OF THE FUTURE:

Fuel efficient—CAFE standards mandate 54.5 MPG for fleet average by 2025.³



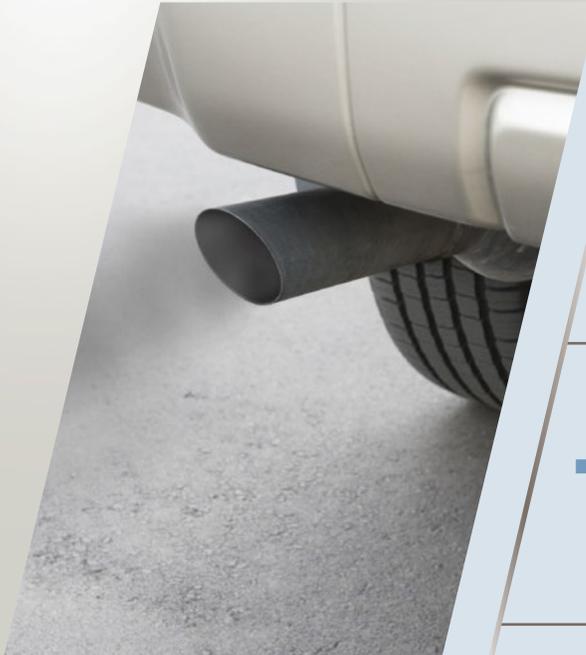
Safe—Customers want improved safety features made standard in all vehicles



Sophisticated—Electronics systems contribute to more than 90 percent of innovations and new features⁴

SUSTAINABILITY

Consumers across all industries are demanding “greener” products. Environmentally friendly, sustainable products not only meet regulatory requirements, they can also add to a company’s bottom line by reducing costs.



INDUSTRIES ARE GOING GREEN

- Next-generation aircraft are expected to reduce CO₂ emissions by 100 million tons per year—the equivalent to taking 20 million cars off the road annually⁶



- Oil and gas companies are aiming for increased production targets with smaller footprints

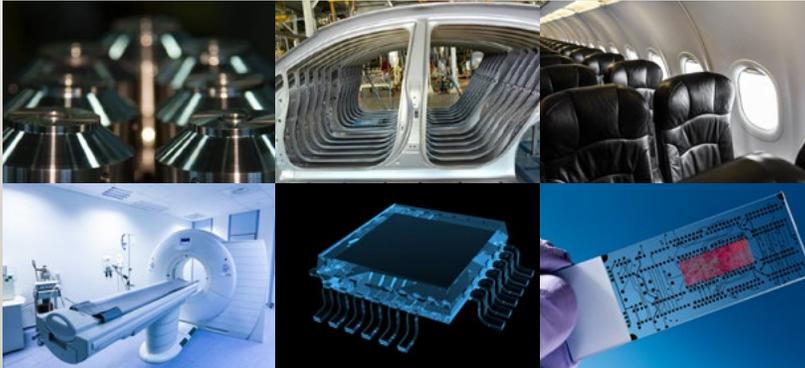


- Heavy manufacturers are seeking to develop products that use less energy and meet environmental standards



NEW SOURCES OF INNOVATION

Burgeoning technologies such as additive manufacturing and advanced robotics open up a world of possibilities. Manufacturers are adopting these approaches to unlock the potential of new materials and use their unique properties to meet regulations and satisfy customer demand.



MORE COMFORTABLE, SAFER, AND EXTENSIVE AIR TRAVEL

- Quieter cabins using sound dampening materials
- Extending aircraft range with energy-efficient turbines
- Reducing fatigue and corrosion with composites, titanium, and advanced alloys

BETTER CONSUMER ELECTRONICS

- Smaller devices with longer battery lives

LESS INVASIVE MEDICAL DEVICES

- Reducing scale and creating more sophisticated, non-invasive diagnostic tools

STAYING AHEAD OF THE CURVE

Bringing breakthroughs to market pays off. Manufacturers who innovate grow significantly faster than those who don't. Simply employing what has worked in the past may no longer be enough. To keep up with changing demands and deliver innovative products, companies must have a progressive technology strategy in place. By identifying the technological gaps and developing relevant solutions, companies will succeed in staying ahead of the Manufacturing Revolution.



CONSIDERATIONS FOR IMPROVING PRODUCT PERFORMANCE

- 1.** Which materials will work the best?
- 2.** What process should be used?
- 3.** How can a good process be optimized?
- 4.** What design elements should be reconsidered?
- 5.** How can product quality be evaluated and controlled?

ABOUT EWI

EWI has developed multiple technology roadmaps designed to identify challenges, set R&D priorities, and advance innovation. We have the capabilities to help you improve your product performance through:

- Material selection
- Process selection
- Process optimization
- Design optimization
- Quality testing and inspection

Our extensive research experience throughout industry helps companies align their technology development strategies with the needs of the market.

EWI®

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¹<http://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/global-manufacturing-outlook/Pages/key-highlights-of-report.aspx>

²<http://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/global-manufacturing-outlook/Pages/key-highlights-of-report.aspx>

³<http://www.nhtsa.gov/fuel-economy>

⁴<http://www.strategyand.pwc.com/perspectives/2015-auto-trends>

⁵http://www.mdpi.com/journal/aerospace/special_issues/aerospace-innovation

⁶http://www.pwc.com/en_GX/gx/industrial-manufacturing/publications/pdf/pwc-rethinking-innovation-in-industrial-manufacturing-are-you-up-for-the-challenge.pdf