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Greenwashing Is Yesterday's News – Responsible Action Becomes a Must for Manufacturers

For a growing number of companies, sustainability is no longer just a marketing argument, but an economic necessity. In times of supply bottlenecks for raw materials and rising energy prices, using scarce and expensive resources efficiently is gaining importance, as Fraunhofer IPK shows in a trend report.

The areas where the pressure to act is currently greatest are energy efficiency, closely linked to CO₂ neutrality. Energy is becoming increasingly expensive. The causes lie, on the one hand, in market effects. Emerging economies are increasing demand, while international crises are tightening supply. On the other hand, CO₂ compensation payments, such as those enshrined in the German Climate Change Act, place an additional burden on industry. But they also create strong incentives. According to the Energy Turnaround Barometer 2021 published by the Association of German Chambers of Commerce and Industry (DIHK), a third of German companies want to become climate-neutral by 2030 or sooner. Here, data-based approaches are interesting: With the help of intelligent control technology, manufacturers can infer ideal setpoints from energy measurement data, which are then automatically transmitted to the relevant machines. In this way, the most energy-efficient operating mode is not only determined, but directly set on the machine. Advances in artificial intelligence will in the coming years leverage additional potential in this area. Further approaches are offered by applying more energy-efficient basic physical principles in mechanical engineering.

From linear to circular economy

The widespread linear economy entails a disproportionate consumption of resources. Modern economy extracts raw materials from its environment to produce goods that are used and then disposed of. With the amount of goods that a growing world population needs and demands, this economic method reaches its limits. »With the current state of production technology, the production of steel, aluminum, plastics and cement alone will cause around 800 gigatons of CO₂ in the 21st century – which is enough to miss the two-degree target. That's why it is important to recycle such materials in the sense of a circular economy, also to reduce the global waste mountain,« says Prof. Dr. Holger Kohl, deputy director at Fraunhofer IPK and head of the Sustainable Corporate Development chair at Technische Universität Berlin. An important key here is remanufacturing and refurbishing. At the end of their useful life, products are not disposed of but refurbished or broken down into components that can be recycled or even reused.

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Resource-saving lifecycle design

Where the use of raw materials cannot be avoided, they must be used in a material-saving manner. The best way to do this is to make the entire lifecycle of a product sustainable right from the start. Even the first decisions that product developers make have a direct impact on the ecological balance of products. For example, it is not enough for them to be power- or fuel-efficient in operation. »Real« sustainability must also take into account how much energy and material is used in manufacturing and under what conditions the product is produced – for example, which social standards were decisive in the process. And: to what extent it can be disposed of with little waste at the end of its service life. »It is important that we think and research along the entire process chain. Which are the points in a product lifecycle where most CO₂ can be saved? The lifecycle assessment method shows us exactly where the greatest impact can be generated. This enables us to identify the major CO₂ drivers in a targeted manner and derive cost-effective and efficient measures,« explains Kohl.

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Demonstrating and communication corporate responsibility

Admittedly: Sustainability means effort, and that comes at a price, too. Energy efficiency, for example, is not possible without investing in modern production technology. But it pays off. Consumers are increasingly rewarding sustainability in their purchasing decisions. Companies are therefore well advised to make their efforts transparent, for example in their financial reporting. With the Integrated Sustainability Cockpit (INC) as well as process and performance management systems for sustainable corporate development, Fraunhofer IPK provides suitable tools for this purpose. In conjunction with appropriate data management, such solutions make a decisive contribution to prove responsible action. If companies reveal the conditions under which they manufacture products, not only in their own operations but also in their supplier network, this not only increases their credibility but also facilitates certifications.

Further information:

Fraunhofer IPK asked industry representatives what challenges and needs manufacturing companies will face in the coming years. The result: in addition to digitization and networking, five R&D trends have top priority across all industries. All trends and background information can be found online at <https://www.ipk.fraunhofer.de/de/kompetenzen/industrietrends.html>. We will be happy to send you a free print copy of our publication on request.

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