Novotek

Success & Sustainability Guidebook

Meet sustainability targets and achieve improved efficiency and profitability – all at the same time.

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In decades past, manufacturers in various sectors have embraced initiatives focused on continuous improvement, aiming to enhance production yields, improve equipment reliability, and minimise waste in materials, labour, and capital. Advanced measurement systems that track metrics like machine downtime and material usage, leading to the establishment of comprehensive factory data infrastructures, all support manufacturers' end goals.

These systems contextualise raw data by associating it with specific details such as order numbers and product codes. Advanced platforms like Proficy Plant Applications from GE Vernova can integrate data from primary sources like water flow meters into this contextual framework. This practice of collecting detailed data related to core equipment and products results in a robust dataset, which serves multiple purposes:

1. **Automating Environmental and Compliance Reporting: Using directly measured consumption data to create regulatory reports and calculate incentives.**

2. **Enhancing Carbon Accounting: With varying standards for translating energy consumption into emissions, having granular data allows for flexibility in reporting and adapting to evolving auditing requirements.**

3. **Incorporating Footprint Analysis in Continuous Improvement: Analysing measured environmental factors alongside traditional performance metrics reveals the interplay between operational changes and environmental impact. Comparing a product's footprint data across different times or locations helps identify significant variations.**

This approach allowed a major North American brewer to spot cases where energy consumption varied when all other factors were equal. Measuring energy consumption next to production orders meant it could hunt for root causes through its efficiency management system.

Root causes for relative spikes in usage ranged from inefficient process control algorithms for heating or chilling equipment, inconsistent adherence to recipe setpoints, and poor power management relative to down or idle times. The brewer utilised this insight to make recipes and procedures consistent across all sites.

The result? The brewer met a 5-year energy-savings target in just three years!

CSRD

The Corporate Sustainability Reporting Directive (CSRD) sets new environmental impact reporting standards for companies operating within the EU.

The new directive builds on the Non-Financial Reporting Directive (NFRD), the reports from which were found lacking in detail and accountability.

"Reports often omit information that investors and other stakeholders think is important. Reported information can be hard to compare from company to company, and users of the information are often unsure whether they can trust it." – The European Commission.

The CSRD mandates more detailed information on how operations meet sustainability goals and provide consumer traceability. With greater transparency, consumers and investors will have the required information to make informed decisions, while the companies subject to the regulations will be held more accountable for their impact.

What will companies be required to report under CSRD?

CSRD reporting will extend to the previously unrequired Scope 3 – but what does each scope mean?

Scope 1 Emissions

Direct output from an organisation's processes and assets. Digitalising manufacturing processes and energy-efficient upgrades can monitor, report on, and improve these emissions as a primary area of influence for manufacturers.

Scope 2 Emissions

Resulting from the energy purchased and consumed by an organisation, such as electricity or heating, not produced on-site but contributing to its greenhouse gas (GHG) footprint. The GHG Protocol's Scope 2 Guidance aids companies in accurately assessing these indirect emissions, facilitating informed decisions on energy sourcing and sustainable energy investments.

Scope 3 Emissions

Encapsulating all other indirect emissions linked to a company's value chain, including upstream goods and services and downstream to goods and services sold. This category offers an all-encompassing view of a company's carbon footprint.

Future-Proofing Profitability & Sustainability

Regulations are not the end of the story. Manufacturers can benefit from gaining the capabilities to enable compliant reporting across all three scopes. New regulations could initially sound taxing, especially if you are at the beginning of your digitalisation journey. But here's the good news—the tools required to evaluate resource utilisation, energy consumption, waste management, and overall environmental impact are the same tools that will allow you to achieve continuous operational improvement.

Furthermore, the CSRD fosters greater transparency in supply chains, requiring manufacturers to scrutinise and disclose their suppliers' sustainability credentials, thus promoting ethical sourcing and responsible supply chain management.

By improving energy efficiency and reducing carbon emissions, companies can gain a positive reputation among eco-conscious consumers, surprisingly significant cost savings and crucial operational efficiencies. Manufacturers must scrutinise and disclose their suppliers' sustainability credentials, leading to greater transparency in supply chains and, therefore, the promotion of traceability, ethical sourcing and responsible supply chain management.

Gain a single source of truth and improve the visibility of your consumption

Direct output from an organisation's processes and assets. Digitalising manufacturing processes and energy-efficient upgrades can monitor, report on, and improve these emissions as a primary area of influence for manufacturers.

Integrate metrics and analysis to provide additional insight

With real-time data consolidation and automated reporting, organisations can unify disparate systems to create a clear picture of energy use and resource allocation. This transparency empowers teams to make informed decisions, reduce inefficiencies, and drive sustainable practices across operations.

Expose hidden relationships between production and sustainability factors

A single comprehensive solution provides insight into materials, recipes, assets and processes to find the root causes of the overconsumption of utilities.

Automate regulatory compliance and power transparency/traceability

Leveraging advanced analytics and interconnected metrics, organisations can uncover patterns, predict outcomes, and identify areas for improvement. These insights enable better strategic planning, reduce waste, and enhance operational efficiency, driving both environmental and financial benefits.

Operator Behaviour, Transparency and Compliance

As more firms conclude that a functional information strategy is a critical first step in their sustainability journey, gaining the correct capabilities to gather and process data is essential. In times gone by, multiple data collection regimens assembled reports for different purposes, such as customers or regulators, which led to inconsistencies and undue workload on operators and analysts.

The alternative is a single data platform that serves multiple stakeholders, such as GE Vernova's Plant Applications. Through a single platform, data is gathered once at an appropriate resolution, and the same data can then be repacked for multiple purposes.

Through this method, operations can automate the management and delivery of regulatory data. Adherence to future carbon passport schemes also becomes a process through which you already have the tools to deal with.

Turning to transparency, increasingly, customers are willing to pay a premium for 'green' products, where you can demonstrate a complete genealogy and the positive credentials of your products in total confidence. With a comprehensive data platform in place, you have the power to track and demonstrate the exact journey a product has gone through, from raw materials to finished goods. And that is not to overlook the power of transparent data on your operation.

With greater process visibility, automated with real-time data collection, operations gain the insight required for intelligence decision-making from the shop floor to the top floor. Ingesting and utilising this data with a powerful analytics platform drives an understanding of the cause-and-effect relationships between asset performance and input consumption. This granular data is then fed into corporate EHS and carbon accounting systems, allowing true utility cost profiles to be a part of production costing and planning exercises. Manufacturers then use cross-plant metrics to accelerate best-practice identification and dissemination.

But that's not where it ends; by embedding analytics into control and visualisation programs, operators can be presented with rich information to drive decision-making at the shopfloor level. By using intelligent systems in this way, operations can also ensure they are not held hostage to the availability of specialists.

# Does your operation look like this...

Equipment and process variability is not profiled for impact on energy and water usage

Utility infrastructure is optimised in isolation from porduction process and quality management practices

The effect of material characteristics on energy and water uses is not understood

Inconsistencies in changeover and cleaning procedures lead to overuse of energy and water

Meeting non-regulator requests for footprint data related to each shipment requires cumbersome manual data collection

...Or Like This?

Processes and formulations are refined to minimise energy and water wastage.
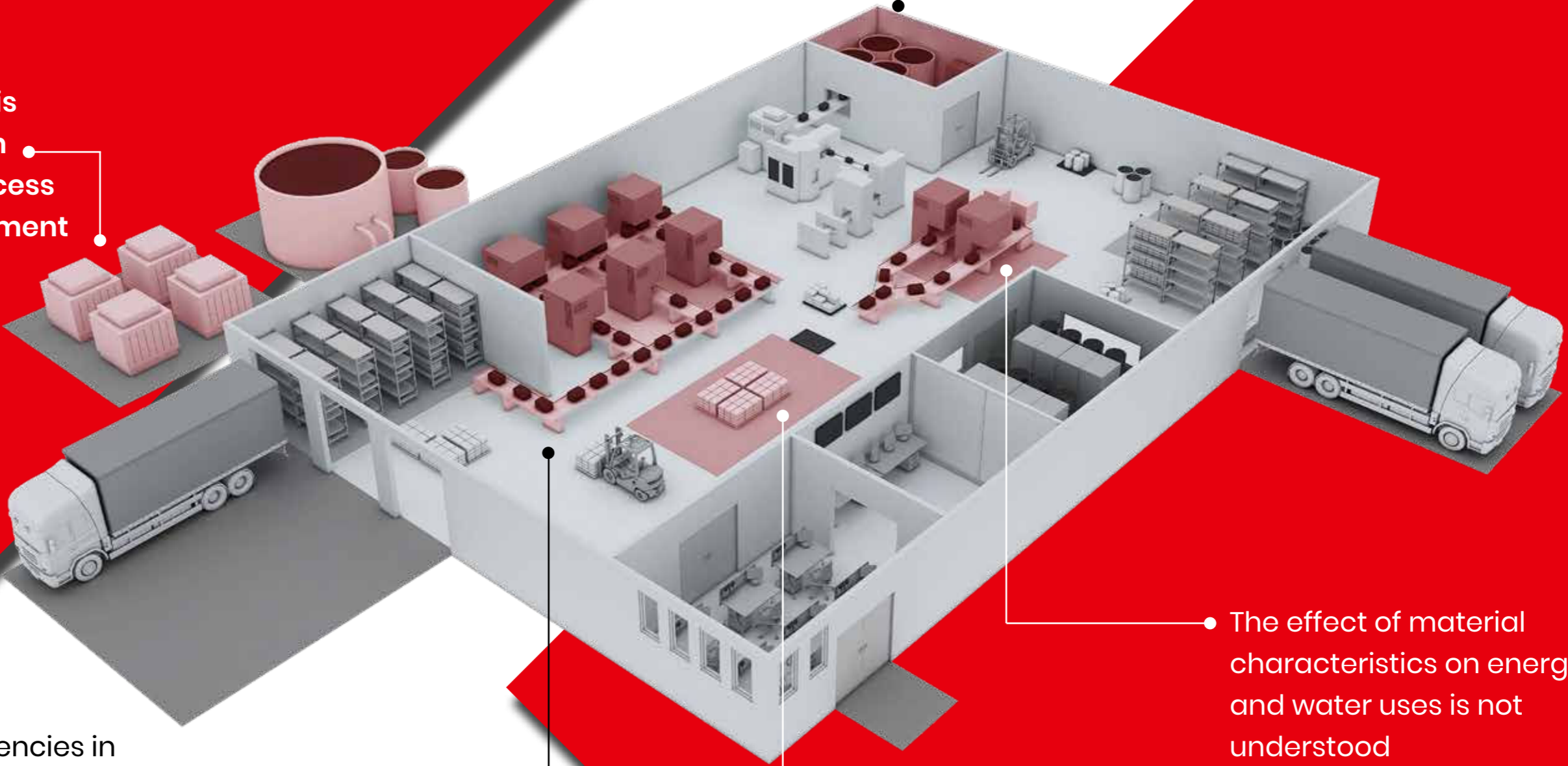
Utility infrastructure is optimised to meet specific process requirements, enhancing efficiency and reducing consumption.

Incoming materials are assessed to determine optimal operating parameters.
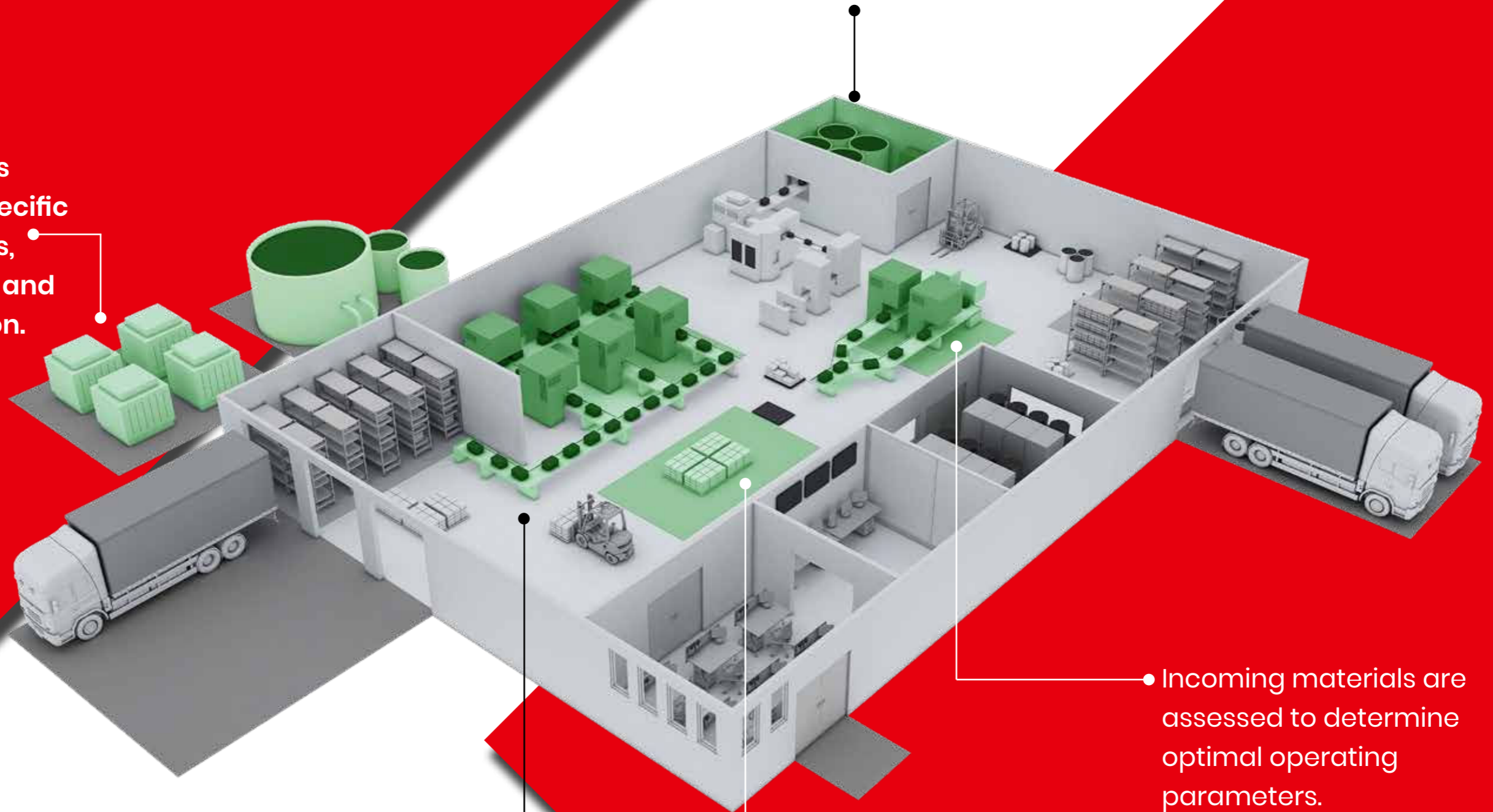
Factory data systems automatically supply carbon accounting or other systems with information required by regulators and stakeholders.

Analytics reveal hidden factors contributing to utility losses, enabling them to be identified and addressed.

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