

# Building Resilience with Energy Management for Manufacturing

splunk>  
a CISCO company



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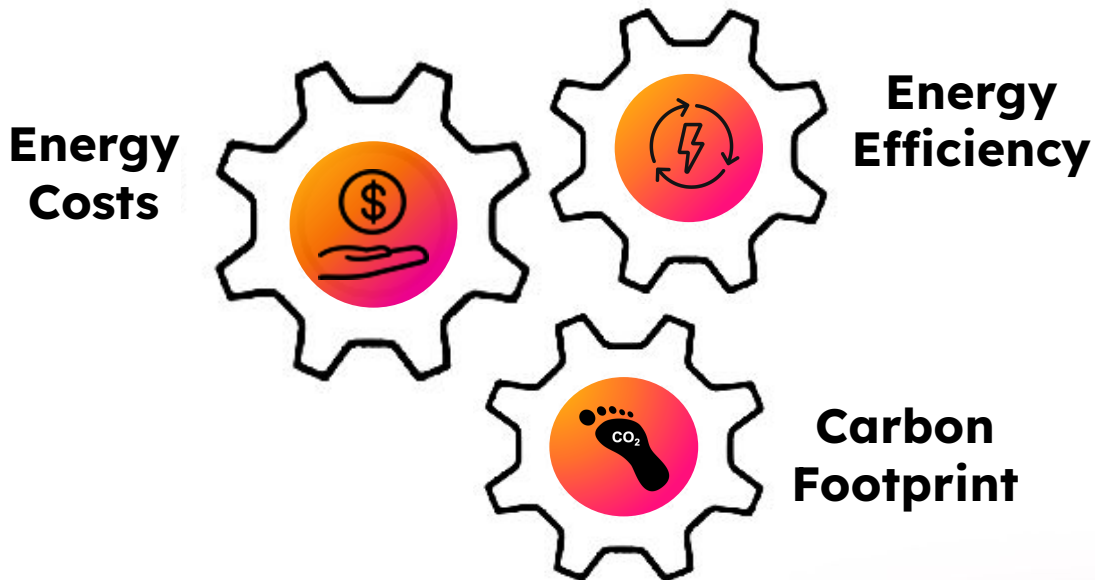
# Why Energy Management?

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# Energy Management is key to building resilience

Three interlinked metrics address key priorities of organizations



# New compliance drivers for energy management

Data requirements for reporting and optimization at scale



**CSRD**

**EU Corporate  
Sustainability  
Reporting  
Directive**



**EED**

**EU Energy  
Efficiency  
Directive**



**EPBD**

**EU Energy  
Performance  
of Buildings  
Directive**



**ISSB**

**International  
Sustainability  
Standards Board**

# New regulations and exploding energy costs drive energy management and sustainability observability

Organizations need to have unified, granular data, not just for reporting but for optimization at scale

## EU Corporate Sustainability Reporting Directive (CSRD)

- In place since Jan. 2024 for large public-interest companies with 500+ employees
- Sustainability reports need to be audited independently
- Mandatory public disclosure under a common European Sustainability framework (ESRS)
- Nearly 50,000 EU companies are affected
- Starting in 2025, CSRD will mandate plans to reach net zero by 2050
- Fines in Germany: €10M or 5 % of the company's total annual turnover

## EU Energy Efficiency Directive (EED), focus on industrials and Data Centers

- Energy management systems are a mandatory requirement for large industrial energy consumers to monitor and optimise their energy efficiency
- Mandatory public reporting
- For data centers, directive comes into force Sept 2024
- Note: 11M EUR is the yearly average energy cost of a German data center
- Forecasts point to a 50% increase of the power footprint of data centers by 2025
- Fines in Germany: Up to €100K

## EU Energy Performance of Buildings Directive

- Nearly-zero energy + zero-emission buildings from 2028
- Fully decarbonised building stock by 2050

## Intl. Sustainability Standards Board (ISSB)

- Global standards for sustainability and climate-related reporting
- In place since Jan 2024

# Energy Management For Manufacturing

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# Specific Priorities per Industry

	Manufacturing Automotive Energy & Utilities	Financial Services	Public Sector	Retail	Telecom	Healthcare
Buildings	X	X	X	X	X	X
Data Centers	X	X	X		X	
Factories	X			X		X

# Energy Management is Top of Mind for Manufacturing



## Rising Energy Costs

- Rising energy costs is one of the top 3 concerns in Europe\*
- Renewable energy is also a cost factor

\*Source: [ABB](#)



## High Carbon Footprint

- About 20% share\*\* on overall CO2 emissions both in the US and Europe
- Significant CO2 reduction targets

\*\*Source: [WEF](#)

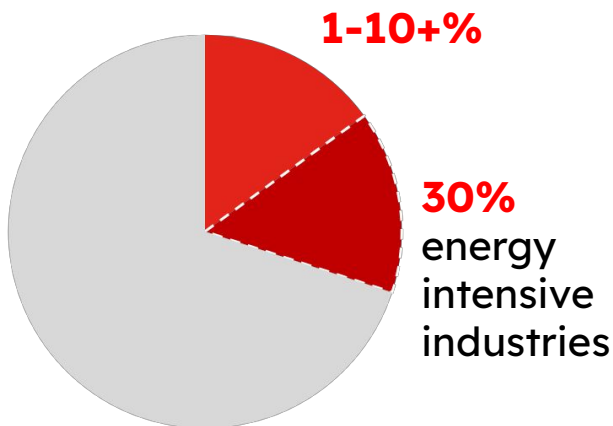


## Increasing Sustainability Regulations

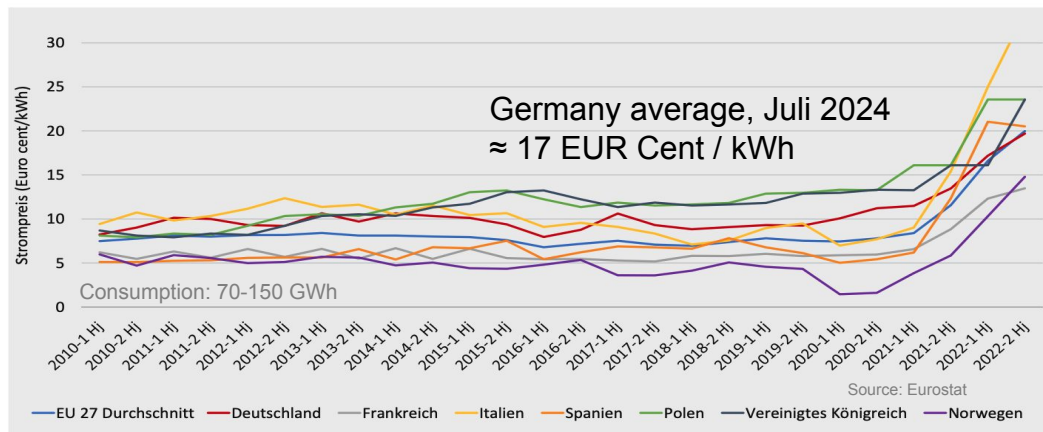
- [EU CSRD](#): Mandatory reporting
- [EU EED](#): Mandatory energy management
- [EU Energy Performance of Buildings Dir](#): Fully decarbonised building stock by 2050
- [Global ISSB](#): Standards for reporting

# Energy Management is Top of Mind for Manufacturing

Average share of energy costs on total production costs in EU

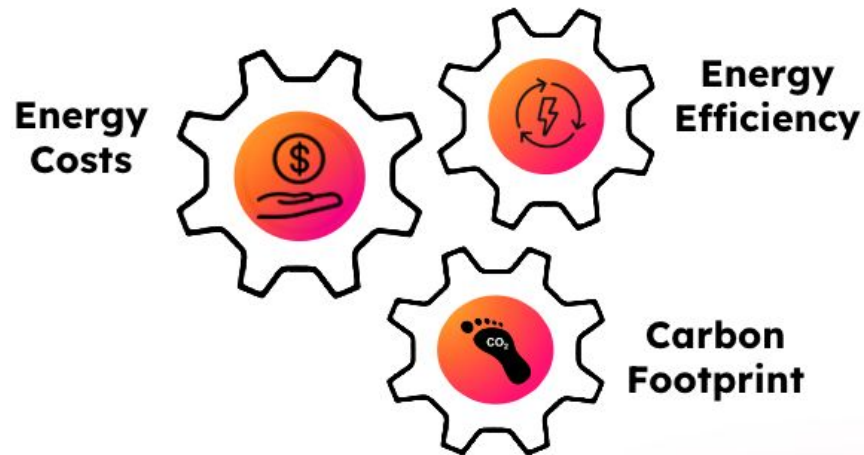


High and rising electricity costs for manufacturers



	Germany	Price / kWh	Consumption	Cost / Year
Steel		7.89 cents	4,500 GWh	<b>355 MEUR</b>
Cement		12.43 cents	400 GWh	<b>50 MEUR</b>

**YOU CAN'T**  
**MANAGE**  
**WHAT YOU CAN'T**  
**MEASURE**



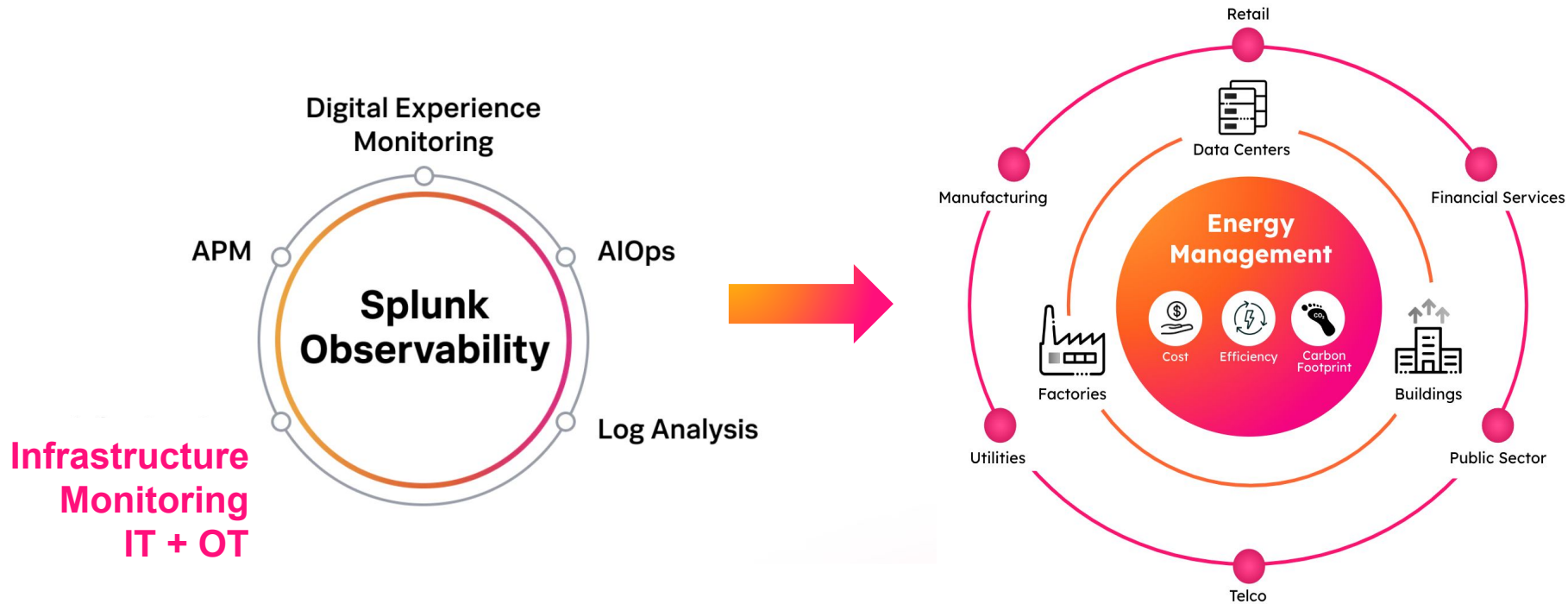
# A Unified Sustainability Solution

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# Unlocking a Key Observability Use Case

## Energy Management for Industries



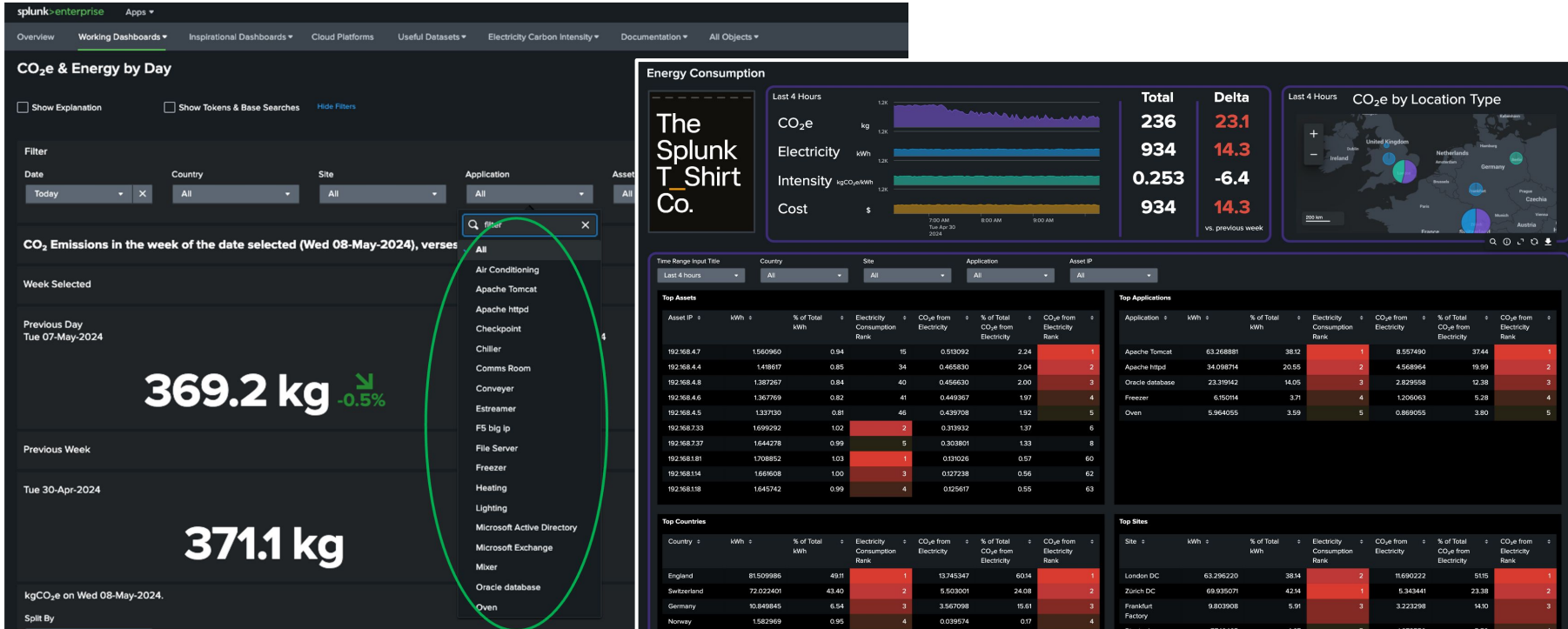


# Unified Sustainability Solution

Across

- Buildings
- Data Centers
- Factories

# Unified, granular, vendor agnostic and real-time visibility across key applications and hardware devices





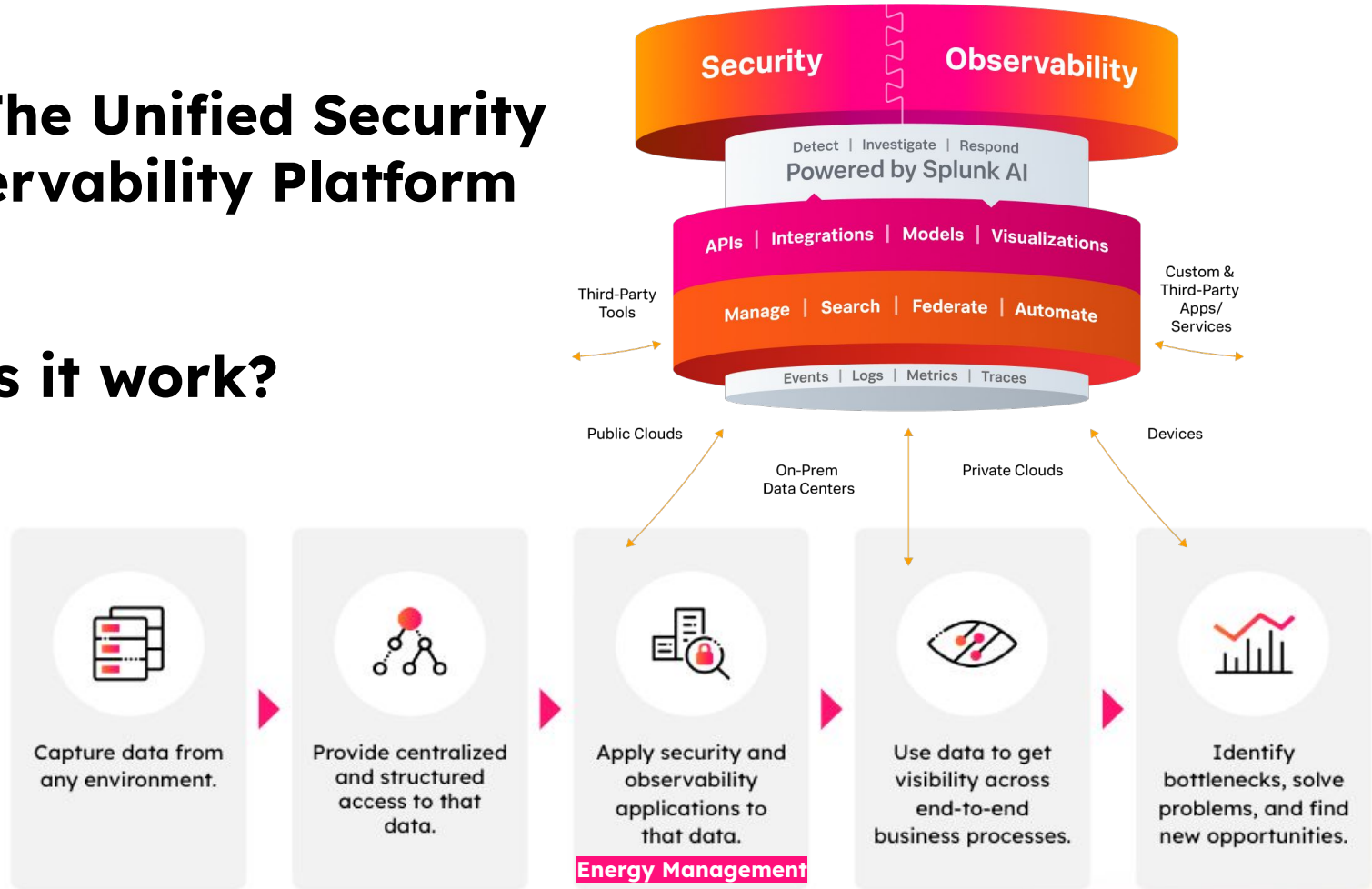
# How Does It Work?

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# Splunk: The Unified Security and Observability Platform

## How does it work?



# Energy Management is a data problem

Understanding energy data sources for unified visibility

## Data Centers

**Network Devices - Cisco + others**

**Edge Hub**

**Electricity Maps**

**Compute & Storage**

- API (Redfish, vendor specific)
- Otel

**Data Center Infrastructure**

- Server Rack
- HVAC
- PDU
- Meter
- Building Management System (BMS)
- Uninterruptible power supply (UPS)
- Data Center Infrastructure Management (DCIM)

**VMs / Containers**

## Buildings

**Network Devices - Cisco + others**

**Edge Hub**

**Electricity Maps**

**Building Systems**

- HVAC
- BMS
- Meter

**Edge Devices / OT / IoT**

- PLCs, SCADA systems
- Sensors

**Laptops**

**Onsite Data Center**

- Compute, Storage servers
- UPS

**Office Equipment**

(monitors, printers)

## Factories

**Network Devices - Cisco + others**

**Edge Hub**

**Electricity Maps**

**Edge Devices / OT / IoT**

- PLCs, SCADA systems
- Sensors

**Meters**

Laptops, servers

**Onsite Data Center**

- Compute, Storage servers
- UPS

**Building Systems**

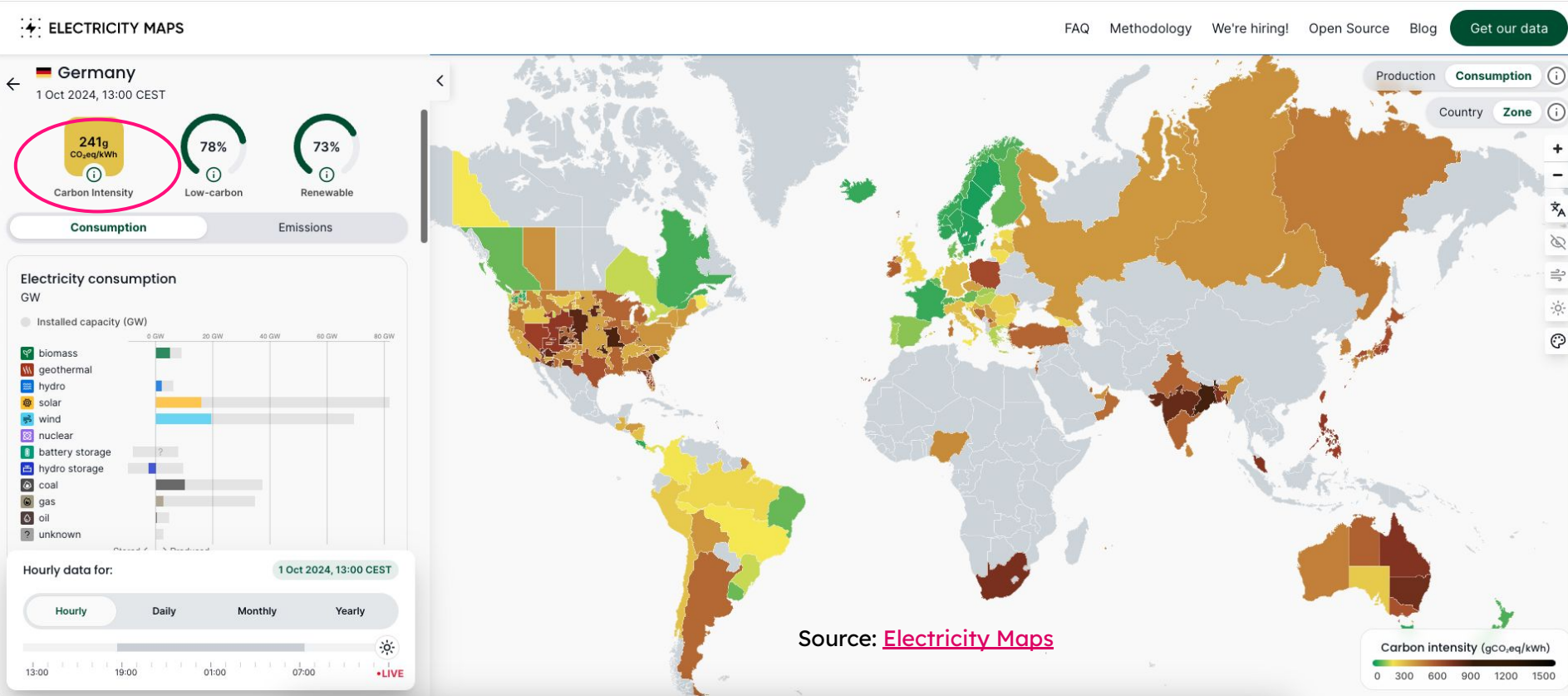
- HVAC
- BMS
- Meter

# Leveraging the Splunk Sustainability Toolkit

The screenshot shows the Splunkbase interface for the 'Sustainability Toolkit for Splunk' app. At the top, there's a search bar with 'Find an app' and buttons for 'Submit an App' and 'Log In'. The app title is 'Sustainability Toolkit for Splunk' with a CO2 footprint icon. Below the title is a description: 'Description: The Sustainability Toolkit for Splunk equips organizations with tools to build a holistic view and gain deep insights into their carbon footprint to align with new sustainability imperatives. Included are visualisation, reports and lookups, which utilise data imported to Splunk by...'. It is built by 'Splunk Works'. There is a 'Login to Download' button and a 'splunk' logo. Below the text are four preview images of the app's dashboards, showing various metrics like 'Carbon Footprint - Executive View', 'Data Usage', and 'Energy Usage'. A right arrow indicates more preview images.

App on Splunkbase <https://splunkbase.splunk.com/app/6343/>

# Leveraging Electricity Maps



# Value Add For Customers

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# Value Add for Customers



**ONE unified solution for energy management with customizable visualizations, metrics, business and technical KPIs**



**Vendor agnostic data ingestion and analytics**



**Inbuilt AI/Machine Learning for detecting outliers, forecasting, clustering and recommendations**

## Business Impact

Unified, real-time,  
granular visibility



Optimizations at scale  
through relevant correlations and KPIs, e.g.  
energy efficiency per building/workload/factory

# The path to greater digital resilience with Energy Management

## Foundational Visibility

### Get Unified, Real-time, Granular Visibility

Focus on key metrics costs, energy efficiency, carbon footprint

## Guided Insights

### Build Correlations and KPIs

Identify key areas and levers to optimize at scale

## Proactive Response

### Optimize at Scale

Transform your operations and optimize costs, energy efficiency and reduce carbon footprint

## Unified Workflows

### Automate the Optimization

Leverage AI / ML with outliers, forecasting, clustering and recommendations to automate

Accelerated by Splunk AI

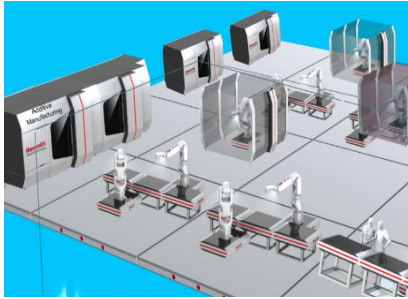




# References & Collaterals



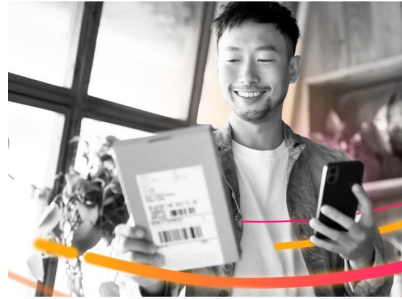
# References Sustainability



**rexroth**  
A Bosch Company

**Industry Innovator  
Award**

as part of Cisco's  
Global Customer Awards  
EMEA 2025 program



**Global Sporting  
Goods Manufacturer**



**Accenture Cloud  
Innovation Center Zurich**



**Cement Industry**

**accenture**   **DIGITAL  
REALTY.**

# Customer Case 1

## Bosch Rexroth AG

### Energy Management for Factories

#### Key Challenges

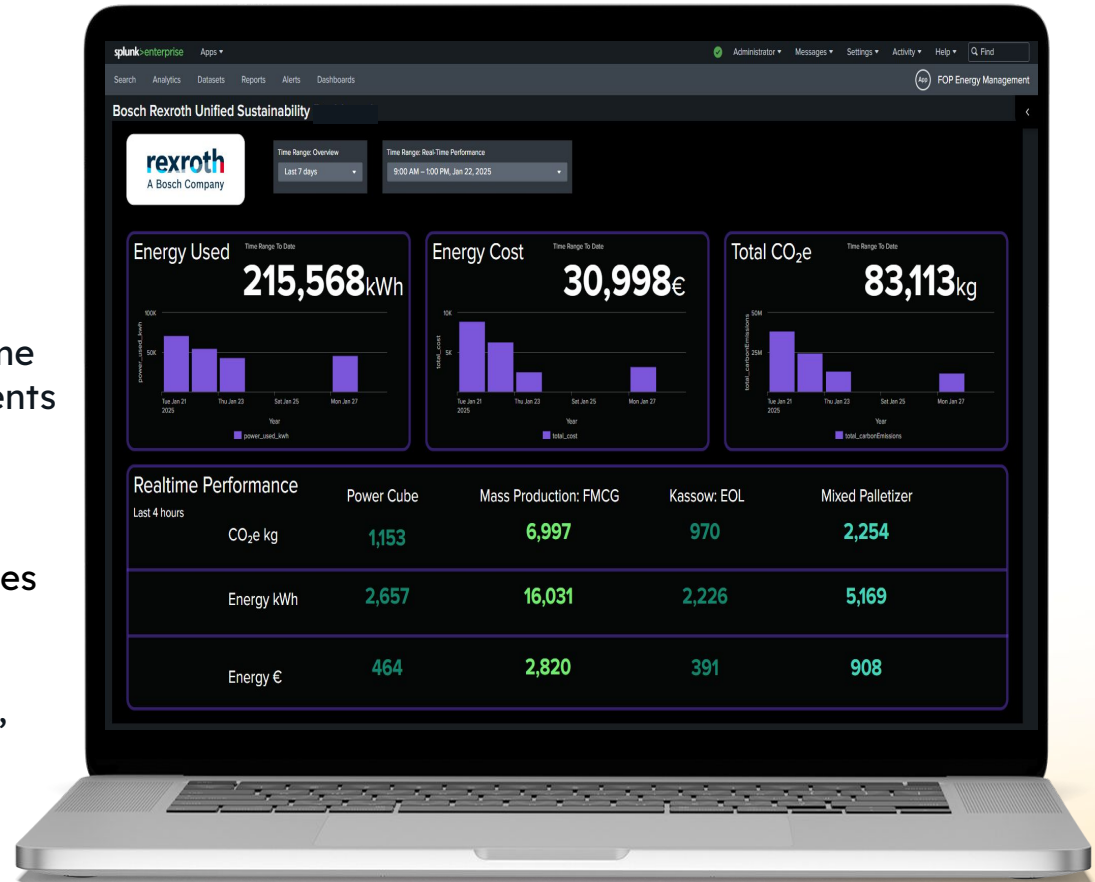
- Skyrocketing energy costs
- Increased regulation
- Lack of unified, granular and real-time visibility across IT and OT environments

#### Solution

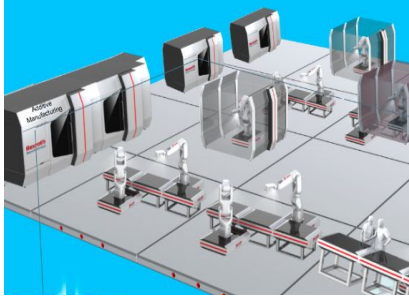
- Leveraged the Splunk Sustainability Toolkit
- Focused on energy-intensive machines
- Enabled optimization at scale with three key levers: Pricing (peak management), availability (standby), timing (operations scheduling)

#### Business Impact / Savings

- Costs (EUR) **20-30 %**
- Energy (kWh) **10-15 %**
- GHG\* emissions (CO2e kg) **25-30 %**



\*\*GHG: Greenhouse Gas



**rexroth**  
A Bosch Company

**Industry Innovator  
Award**

as part of Cisco's  
Global Customer Awards  
EMEA 2025 program

***“IT and OT observability in our factories is key.***

*We have significantly increased our resilience  
by using Splunk's energy management solution  
in combination with our Factory Orchestration Platform  
(FOP) by tackling energy costs, energy efficiency  
and carbon footprint.”*

**Harald Lukosz**

Referent Product Area Stage R&D, Bosch Rexroth AG

**Cisco Live Presentation 2025 Amsterdam: [Building Resilience  
with Energy Management for Factory Automation at Bosch Rexroth AG](#)**

# Customer Case 2

## Global Sporting Goods Manufacturer

### Unified Sustainability Solution for the Cisco Network

#### Key Challenges

- Tooling complexity
- Lack of real-time visibility

#### Solution

- Leveraged the Splunk Sustainability Toolkit
- Unified Cisco + Splunk solutions
- Built key KPIs/ correlations, e.g. energy + traffic efficiency by sites & families

#### Business Impact

- Unified, granular and real-time visibility across countries, sites, devices family and devices
- Enabled optimization at scale



Disclaimer: Figures are for illustrative purposes only

Emissions are calculated using Electricity Maps (EM) real-time values of kgCO<sub>2</sub>e/kWh from the grid or based on an organization provided Carbon Factor (CF) per location.

# Customer Case 3

## Accenture Cloud Innovation Centre Zurich at Digital Realty

### E2E Visibility and Carbon Footprint Optimization of Data Centres

#### Key Challenges

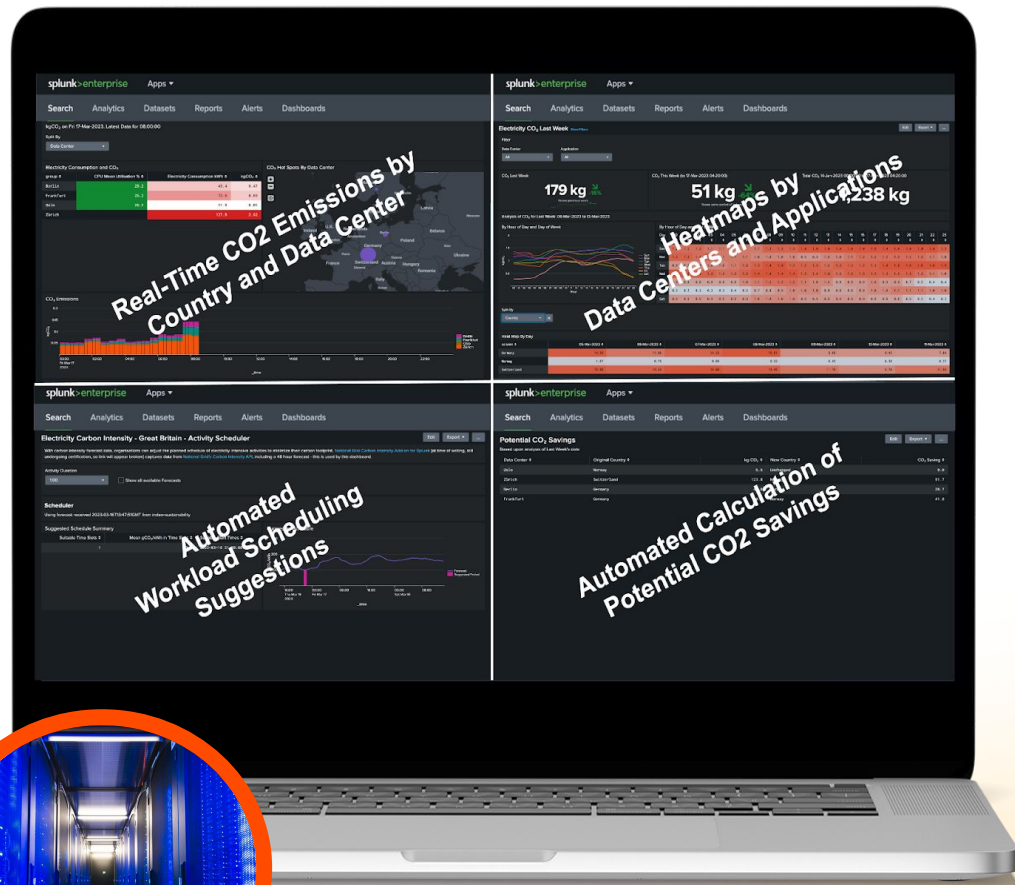
Lack of granular and real-visibility

#### Solution

- Leveraged the Splunk Sustainability Toolkit
- Focused on complex, energy-intensive but non-time-critical workloads

#### Business Impact

- Unified, granular and real-time visibility across countries, DCs + applications
- Enabled optimization at scale with two key levers:
  - Location (workload shifting)
  - Timing (workload scheduling)



# Customer Case 4

## FLSmidth

### Carbon Footprint Reduction in Cement Production

#### Key Challenges

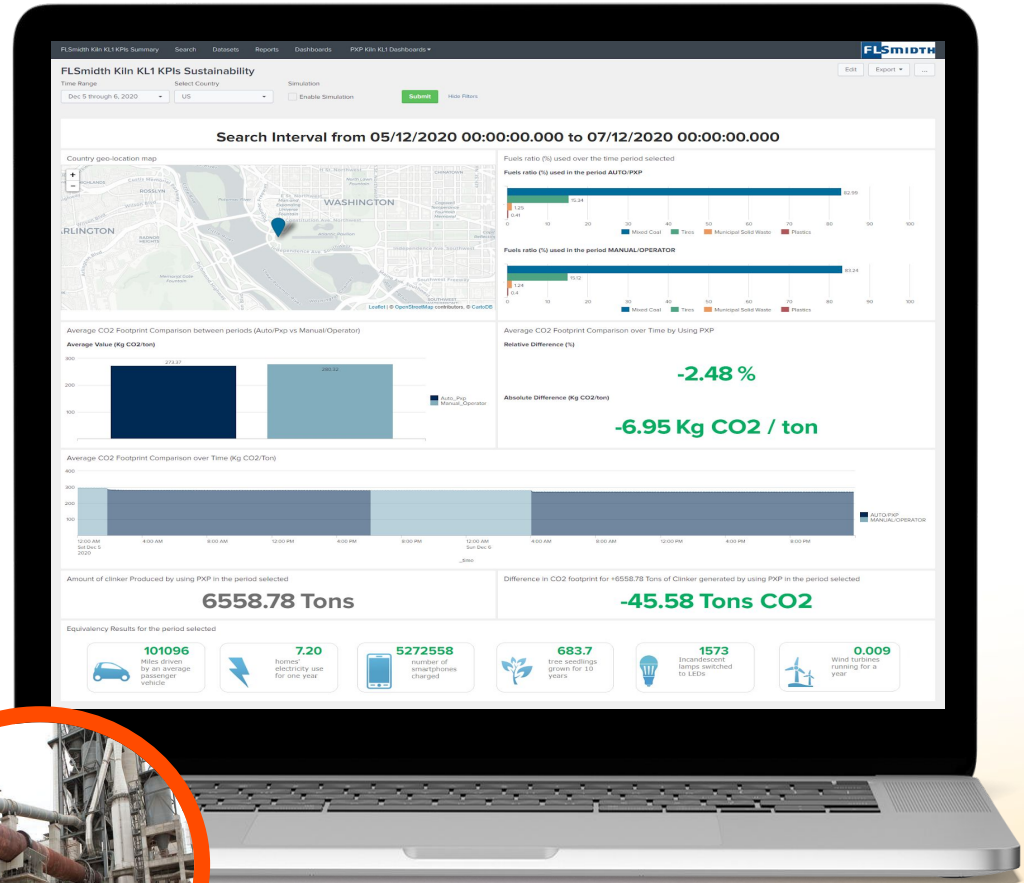
Realization of the company goal: “Towards zero emissions in mining and cement”

#### Solution

Leveraged Splunk with a customized dashboard

#### Business Impact

- Real-time + simulated / predictive view of GHG emissions to optimize “ingredients” of power-mix during cement production
- Reduction of carbon footprint
- Automated translation into tangible equivalents such as car miles



# THE SMART FACTORY by Deloitte



in Duesseldorf enriched by

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a CISCO company

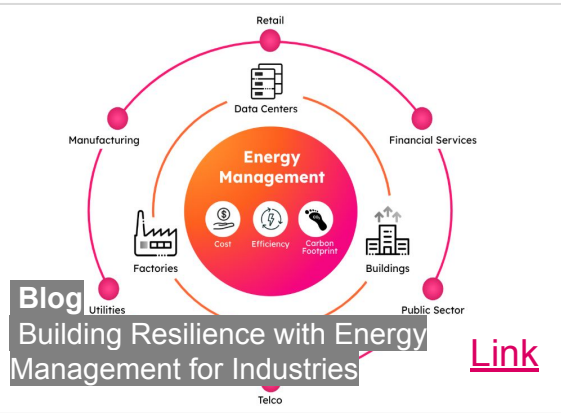
OT  
Security

Energy  
Management





# Read On!





## You can't manage what you don't measure: Unified visibility is the foundation for energy management and compliance

### It's time to take a strategic view of energy management.

Energy keeps organizations operating — whether it is keeping a factory conveyor belt running, letting citizens access digital services from home, or ensuring retail stores can open to serve customers. It's also a costly, and sometimes unpredictable, business expense.

Better energy management gives organizations more control and insight to weather change and strengthen operational resilience. Today's organizations know that controlling energy consumption is critical to lowering operating costs and enhancing efficiency, but there's more at stake.

When organizations take a strategic view of energy management, they can address three interlinked priorities: energy costs, energy efficiency, and carbon footprint. Governments and companies around the world have acknowledged the importance of reducing emissions, many with a goal of reaching net zero greenhouse gas (GHG) emissions by 2050. Energy efficiency contributes to an improved carbon footprint.

To meet sustainability goals, organizations need to revitalize their thinking around energy management. Instead of a fractured approach hampered by disparate systems and manual workarounds, organizations need to bring critical data into a unified solution that lets them see trends and take action.

1

[Link](#)



## Environmental sustainability

Our holistic approach to environmental sustainability includes how we operate our business, how we help our customers and suppliers make progress toward their sustainability goals, and how we do our part to help the world adapt to a changing climate.

## Link



### Strategy, goals, and emissions data

We are accelerating the transition to clean energy, evolving our business to circular, and investing in resilient ecosystems.



### Environmental compliance

We maintain compliance with applicable environmental laws, regulations, and other obligations.



### Clean energy transitions

We invest in renewable energy, support suppliers in their clean energy transitions, and apply our technology to connect clean energy and digitize the grid.



### Circular transformation

Central to the concept of a circular economy is maintaining assets at their highest and best use for as long as possible. We apply circular design principles and improve the energy efficiency of our products to reduce our environmental footprint.