

# Nachhaltigkeit bei Amazon Web Services

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# THE CLIMATE PLEDGE Paris... 10 years Early

## Bekenntnis zu einer nachhaltigen Zukunft

Am 19. September 2019, Amazon und Global Optimism haben den [The Climate Pledge](#) bekannt gegeben, das Bekenntnis den Paris Agreement 10 Jahre früher zu erfüllen

**Net zero CO<sub>2</sub> bis 2040**

**Weg zur 100% erneuerbare Energie**

**bis 2025**

**\$2 Milliarde für den Climate Pledge Fund**



# Erneuerbare Energie

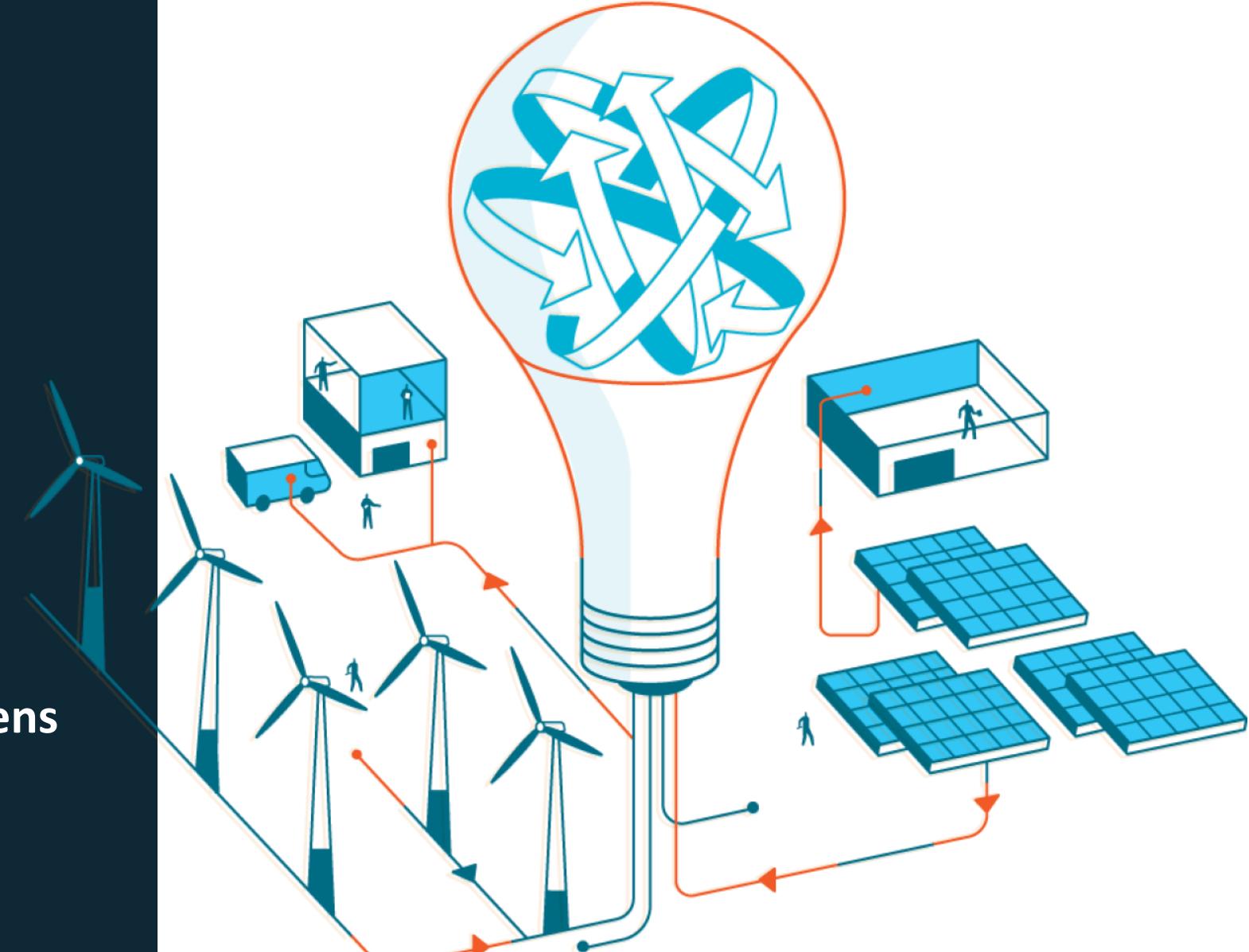
Amazon ist weltweit der größte Einkäufer (als Unternehmen) erneuerbaren Energien  
Auf dem Weg zu 100% erneuerbaren Energie bis 2025

**232** Globale erneuerbaren Energie Projekte

**85** Solar und Wind Projekte in der  
Größenordnung eines Versorgungsunternehmens

**147** On-site Solar-Systeme

**10** GW an gesamten erneuerbaren Kapazität



# The Climate Pledge Fund

In Juni 2020 hat Amazon The Climate Pledge Fund bekanntgegeben:

Eine zielgerichtetes Investitionsprogram mit einer Finanzausstattung von anfänglich \$2 Milliarden  
Es wird in visionäre Projekte investiert, deren Produkte und Lösungen den Wechsel in einer niedrig-kohlenstoff Ökonomie unterstützen



# Right Now Climate Fund

100 Millionen US-Dollar Fonds zur Unterstützung naturbasierter Lösungen, die die CO<sub>2</sub> Speicherung erhöhen oder Emissionen in Wäldern, Feuchtgebieten und Grasland auf der ganzen Welt vermeiden.

Unterstützt “Und / Auch” Lösungen

Zeigt sofortige Wirkung

Unterstützt eine globale Skalierbarkeit

Optimiert für CO<sub>2</sub> Mitigation

Verbessert Markt Mechanismen



# Shipment Zero



**Mehr als 50 Amazon Einrichtungen  
weltweit werden von Solaranlagen an  
ihren Dächern mit Energie versorgt**

**Amazon hat unlängst 100,000 neue  
Elektro- Lieferfahrzeuge bestellt**

# Andere Initiativen von Amazon

- **The Climate Pledge Arena**

Der erste net zero CO<sub>2</sub> zertifizierte Arena weltweit

- **Climate Pledge Friendly Shopping**

Hilft dem Kunden nachhaltige Produkte zu entdecken und zu kaufen

- **Echo and Fire devices**

Low-power mode, recycled Material

# Es ist grüner in der Cloud

Die Infrastruktur von AWS ist um  
**3.6x mehr Energie effizient** als der  
durchschnittliche Rechenzentrum eines US Unternehmens, laut Befragung

AWS erfüllt die gleichen Aufgaben mit  
**88% niedrigerem CO<sub>2</sub> Fußabdruck**

Source: 451 Research, 2019, all rights reserved

# Kühlungswasser Reduktion

AWS hat mehrere Initiativen um den Wasserverbrauch für die Kühlung von Rechenzentren effizienter zu gestalten:

- **Kühlung durch Verdunstung**
- **Reduzierung der Trinkwassernutzung**
- **Recycled Kühlungswasser**
- **Investieren in Wasser Infrastruktur wie Wiederaufbereitungssysteme**



# Daten: Kostenlose und kommerziell gehostete Datensätze

Open Data  
Program

Amazon Sustainability  
Data Initiative

AWS Data  
Exchange

Bereitstellung des Zugangs zu Daten, um eine Vielzahl von  
Nachhaltigkeitsherausforderungen zu bewältigen



*Image from Landsat 8 satellite, courtesy of the U.S. Geological Survey*

# Nachhaltigkeit: Ein Datenproblem

## Messen

AWS IoT/Greengrass um eine wahrhaftige Sicht der Welt und ihre Anlagengüter zu bekommen

## Speicherung

Amazon S3 Data Lakes speichern, transformieren und managen proprietäre und öffentliche Daten

## Analyse

Amazon Redshift und Athena helfen “die Daten zu befragen”

## Dashboarding

Amazon QuickSight hilft die Daten in Echtzeit sichtbar zu machen und daraus Handlungen abzuleiten

## Intelligenz

Amazon SageMaker managet KI/ML um die Welt zu modellieren

# Nachhaltigkeits Use Cases: Kategorien



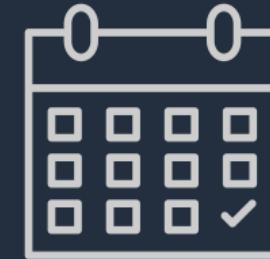
Facilities  
Management



Manufacturing  
Processes



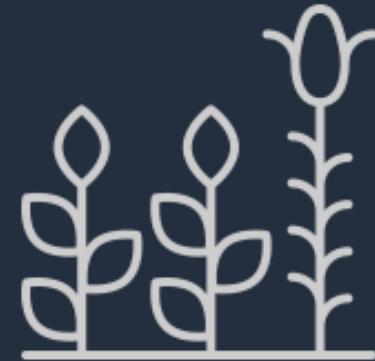
Transportation &  
Logistics



Predictive  
Maintenance



Fleet  
Management



Smart Agriculture



Monitoring &  
Forecasting



Smart  
Cities

# Nachhaltigkeitsgeschichten unserer Kunden

**AVIS**<sup>®</sup>

 **NETAFIM**

 **edf ENERGY**

 **ONREL**  
Transforming ENERGY



**Cognizant**

**SIEMENS**

 **CHICAGO**

 **The Weather Company**  
An IBM Business

 **eWater**

 裕隆電能  
Yulon Energy Service Co., Ltd.

 **dash**

 **Carrier**

 lightsourcebp  

 **GPT**  
The GPT Group

 **fourdesire**

 **bluedot**

 **data prophet**  
machine learning specialists

 **QANTAS**

 **xylem**  
Let's Solve Water

 **NEWPORT**  
CITY COUNCIL  
CYNGOR DINAS  
**CASNEWYDD**

 **TIER**

 **Nestle**

 **MOIA**

 **engie**

 **BIRD**

 **SAILDRONE**

 **Zephyr Cloud**

 **qIue**

# Manufacturing: Nestlé

## Product traceability with Chain of Origin

### Challenge

- Providing transparency to consumers of origination of raw materials in food and drink products
- Having the right raw material ingredient data for new innovations, recalls, or financial insights

### Solution

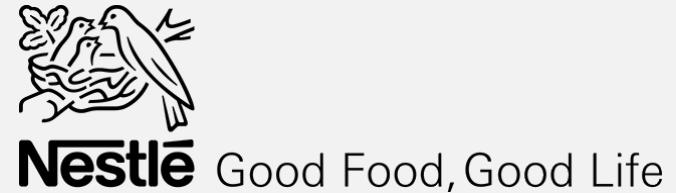
Using the AWS Managed Blockchain service, the data entered at the source of harvesting is digitized to provide a full history of location, time harvested, shipping, and quality information

### Benefits

- Visibility of Product Origins to increase quality and traceability
- Allow customers and supply chain partners to track their products on the blockchain from the farm all the way through to consumption

“[We want] to completely review how we do business, from sourcing products at the micro lot level, all the way through to tracking products individually to the end consumers.”

Armin Nehzat, Sydney-based digital technology manager for Nestlé



A screenshot of an Amazon mobile application interface. At the top, it shows the time as 5:19, the browser as Chrome, and the URL as amazon.com.au. Below that is a navigation bar with a back arrow, a menu icon, the Amazon logo, a search icon, a notification bell, and a shopping cart icon. The main content area has a header for "Outlet Store" with the sub-instruction "Shop thousands of discounted items". A product listing for "Chain of Origin Roasted Coffee Beans Light, 500g Bag" is displayed, featuring a 5-star rating. The product image shows a brown paper bag of coffee beans with a "Chain of Origin" label. Below the image are two dropdown menus: one for "Flavour Name: Light" and another for "Size Name: 500g". At the bottom, the price is listed as "\$41.70".

# Aviation: Qantas

*"From a business point of view, Project Constellation is going to save us \$40M in fuel costs each year by a 1% or 2% improvement on these flight plans. And we're going to reduce our carbon emissions by around 50 million kilograms each year because of the system."*

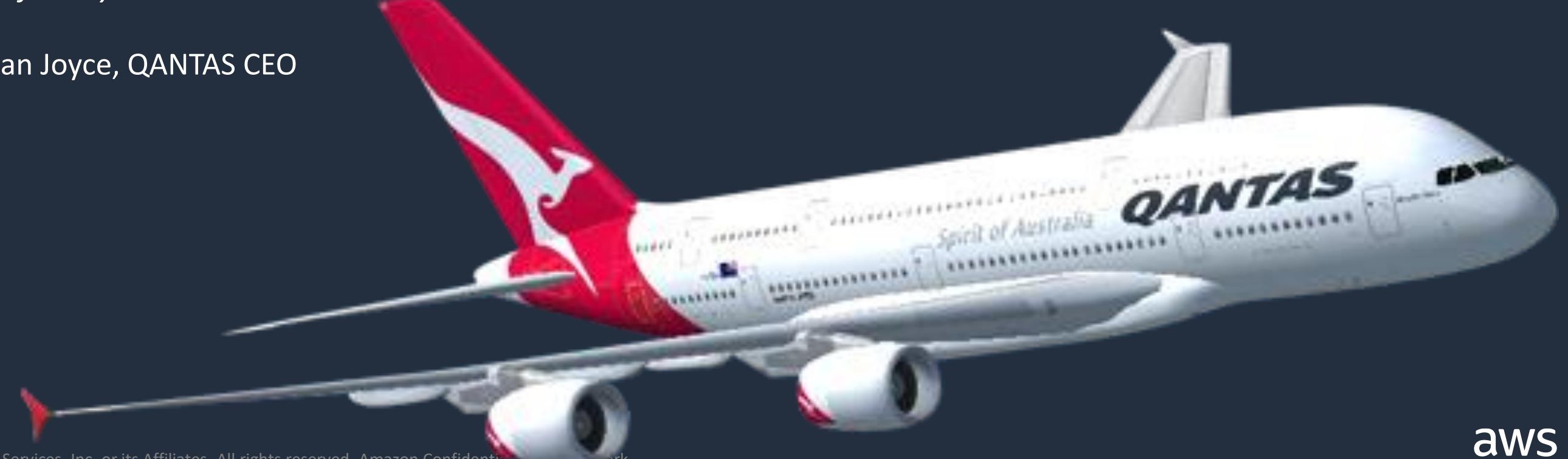
- Alan Joyce, QANTAS CEO

**Project Constellation:** An AWS-based flight path simulator to continually asset flights en-route to determine the most efficient path.

**2.5% Reduction in fuel consumption**

**\$40 Million saved in fuel cost in 2019**

**50k tons CO<sub>2</sub>e reduction**



# Power & Utilities: EDF

EDF Renewables is linking widely distributed solar generation Assets into an AWS data lake. Now that EDFR has their PI System data bridge in place, they can leverage the AWS global infrastructure to easily transfer data from their solar panels and wind turbines into the cloud in a centralized framework, with much greater transparency and stability than on-premises. This will also add capabilities for Predictive Maintenance and Forecasting analytics.

AWS also enabled EDF Energy (UK) to build and scale its Demand-Response PowerShift platform, which enables customers to reduce or shift energy consumption when needed and monetize their excess energy through EDF Energy's trading services.

Agility: using AWS, the company delivers a scalable solution for its customers and reduced deployment time (example of code upgrade: from days to 14 minutes).



# Smart buildings: Engie

ENGIE [built on AWS the Common Data Hub \(CDH\)](#), a repository of data accessible by any of ENGIE's business units and can be easily cross-referenced from all of the energy giant's global offices.

Engie launched a [smart building application](#) on AWS to provide customers with energy management tools. Clara Domus enables building managers to monitor the operations to detect problems. Currently there are 500 buildings that connected with over 16,000 sensors.



Engie is also migrating [SAP/4HANA on AWS](#) with significant reduction in infrastructure cost and ROI from Automation.



# Smart buildings: Siemens

*Siemens builds their Digital Lifecycle Platform for Smart Buildings on AWS*

Challenges	Solution	Benefits
<ul style="list-style-type: none"><li>• Digitalize building technology business from sales/planning to operations</li><li>• Establish machine readable single source of information for all structural and asset data in commercial buildings</li><li>• Scale to 500,000 buildings and billions of devices of different vendors</li></ul>	<ul style="list-style-type: none"><li>• Establish digital twins of buildings on MindSphere, Siemens IoT operating system</li><li>• Develop value-add services e.g. optimization of energy/space usage</li><li>• Adopt DevOps culture and practices in development teams</li></ul>	<ul style="list-style-type: none"><li>• Reduced innovation and deployment cycles</li><li>• 50% reduction in energy cost</li><li>• 20% maintenance cost reduction</li><li>• 20% higher occupancy rate</li><li>• 15% increased customer satisfaction</li></ul>

“

With the support of AWS Professional Services we were able to ensure our digital platform fulfills our very high demands on security and scalability. AWS Professional Services were key in speeding up our project and significantly increasing the expertise of our teams.

”

**Markus Winterholer**  
Chief Product Owner, Digital Lifecycle Platform

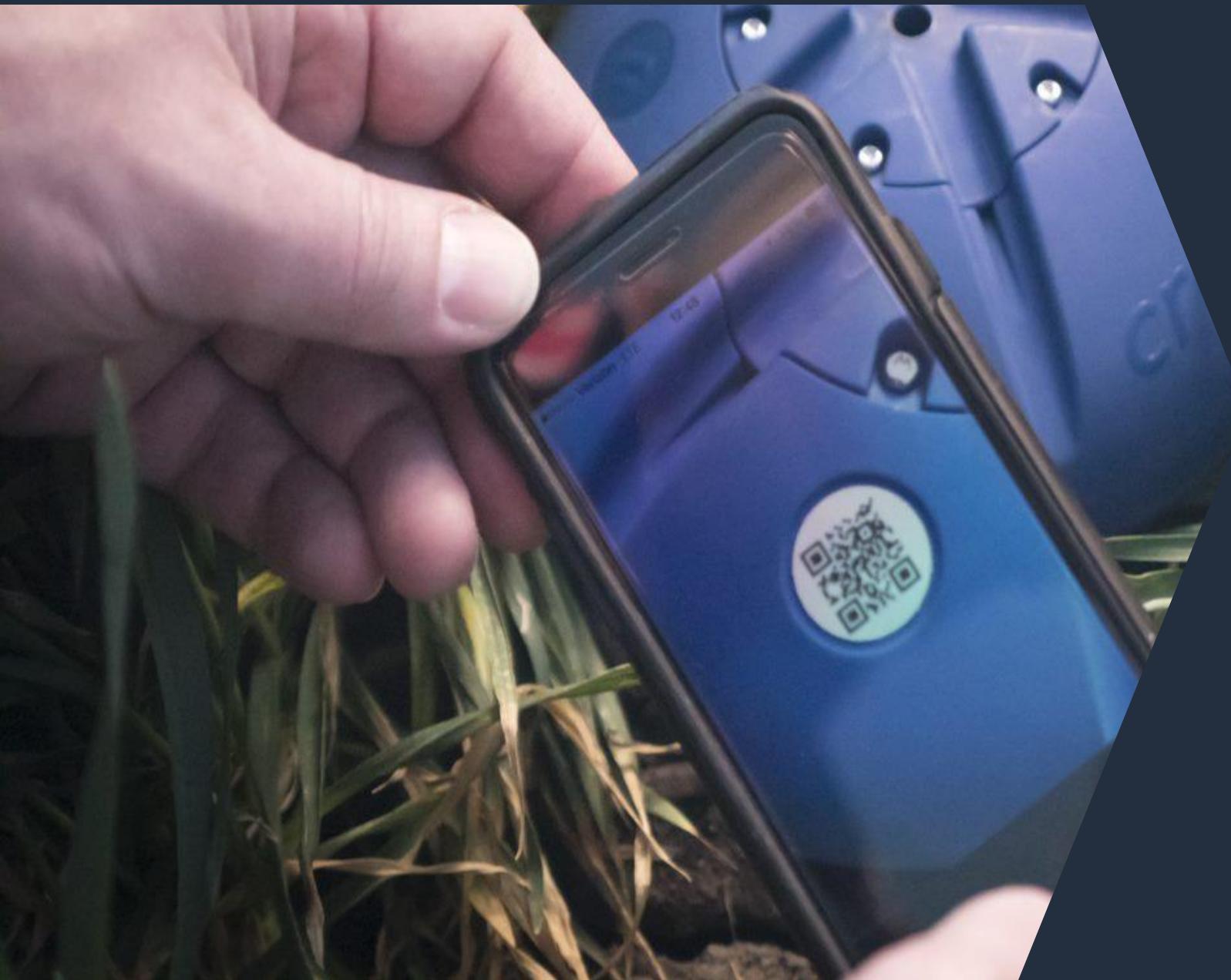


**Company:** Siemens Schweiz AG  
**Industry:** Building Technology  
**Country:** Switzerland  
**Employees:** 28000+  
**Website:** <https://www.buildingtechnologies.siemens.com/bt/global/en>

Headquartered in Zug, Switzerland, the Building Technologies Division is a leading provider of automation technologies and services for commercial, industrial and public buildings and infrastructures across their entire lifecycle.



# Smart agriculture: CropX



## Soil Sensors Enable Sustainability

- combines above-ground data sets with in-soil data measured by sensors that transmit the data to the AWS-based platform.
- integrated with imaging, weather, topography, and soil data and analyzed by AI-based algorithms to provide analytical insights via the CropX web or mobile app.
- demonstrated more than 40% water savings across different crop types, with a 10% yield increase.

# Smart water: RiverWatch



## Waterborne drones monitor quality

“We started working on integrating everything we had been building and getting set for a future on AWS, using emerging technology like machine learning to make RiverWatch smarter and able to deliver high quality intelligence on our water,”

James Muir, Founder, Riverwatch

Thanks to the analytics capabilities provided by AWS, this data can be used to provide advice on river management and can predict future conditions and advise remedial actions ahead of time

# Welche Nachhaltigkeitsprobleme möchten Sie lösen?

- Welche sind Ihre größten Herausforderungen bezüglich Nachhaltigkeit?
- Wie viel kosten Sie bzw was erwarten Sie sich, was sie kosten werden?
- Wie lösen Sie diese Themen derzeit?
- Wie könnten Sie das einfacher gestalten?
- Was wünschen Sie sich, daß Sie umsetzen könnten?



# Mögliche nächsten Schritte für Ihre Nachhaltigkeitsreise

- Zusammenarbeit mit dem AWS Digital Innovation for Sustainability Team
- Nachhaltigkeits Well-Architected Review
- Möglichkeiten für Use Cases mit AWS Sustainability Datensätze
- Mehr über KI/ML Technologien lernen



# Leadership Principle

## Success and Scale Bring Broad Responsibility

We started in a garage, but we're not there anymore. We are big, **we impact the world**, and we are far from perfect. We must be humble and thoughtful about even the secondary effects of our actions. Our local communities, **planet**, and future generations need us to be better every day. We must begin each day with a determination to make better, do better, and be better for our customers, our employees, our partners, and **the world at large**. And we must end every day knowing we can do even more tomorrow. Leaders create more than they consume and always leave things better than how they found them.

# Aus dem Nähkästchen geplaudert – was macht AWS intern noch?

- AWS trainiert die ganze Mannschaft – Basics und erweiterte Trainings
- Wöchentlicher Newsletter
- Viele (offene) Positionen weltweit
- Klare Kommunikation wer für was die richtigen Ansprechpartner sind
- Teilnahme an UNO COP 26 Konferenz in November und andere Konferenzen





# Danke!

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