Digital4Impact Tech Radar

Water Management Deep Dive

IMPACT LABS.earth
Nature Positive Business

ACKNOWLEDGEMENTS

Impact Labs.earth would like to express its deepest appreciation to all those who have contributed to this report with information, time, and that keep on contributing with a positive impact.

To Udi Gesimar from Takadu, Ricardo Prelhaz from Asterra, Alex Forcella, Ville Ylänne and William Robinson from Smartvatten, Bruno Abreu from Scubic, to Erik Wallen from Banyan Water, Gregoire de Hemptinne from Shayp, Alex Kaak, Simon Brunet and Jerry Leong from Connected Sensors, to Mechteld Andriessen from eLEAF, Jonathan Cohen from SupPlant, Nicolas Lepietre and Taher Mestiri from Seabex, Rafael González de Lucas from Spherag - a special thanks for the insightful discussions.

And finally we would like to thank the Impact Labs team that contributed to this project: Mariana Cerdeira Pinto, Pauline Rocher, Rita Martins and Thibauld Berly.

Introduction

The urgency of tackling the water crisis

According to the 2024 UN Report regarding the progress on implementation of Integrated Water Resources Management, **over 2 billion people** worldwide lack access to safe drinking water, while about half of the world's population experiences severe water scarcity for part of the year. The fulfillment of human rights to water, sanitation, and a clean, healthy environment remains unmet. The situation is anticipated to deteriorate further. Current data suggests that without improvements in water quality and monitoring, the health and livelihoods of **4.8 billion people could be jeopardized by 2030**.

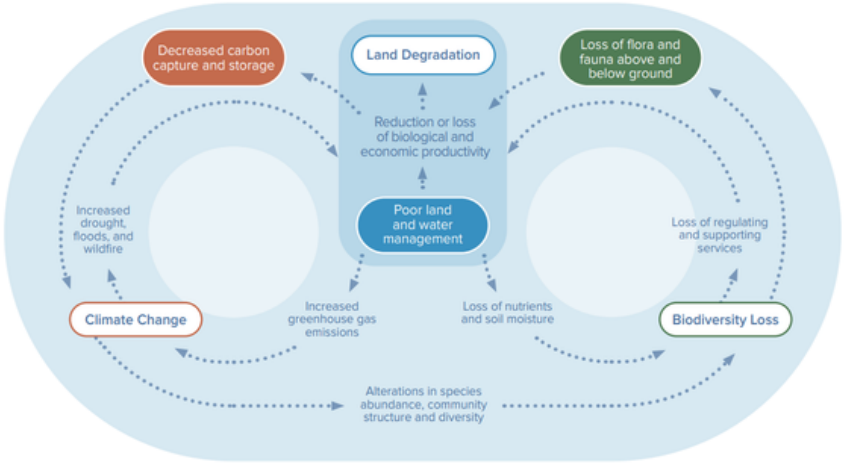
Water is extremely important not only in terms of survival, but also economically speaking, as it is the basis of everything we produce. The urgency of water management has escalated due to global challenges, such as **climate change** (precipitation patterns/entire water cycle disruption), **population growth**, and **rapid urbanisation**, followed by a higher per capita water consumption in growing urban, domestic, and industrial water sectors.

We have been interfering with the **availability of freshwater resources**, adopting excessive consumption both on a large scale (to achieve short-term economic goals) and on a small scale (demonstrating pure profligate consumerism and associated ignorance).

Besides quantity, the **quality** of this resource is also being compromised, through **pollution and degradation of the ecosystems** that encompass it. According to Singapore Global Centre, over **80% of global wastewater** is disposed into water bodies without proper treatment. Additionally, in the last two decades, terrestrial water storage (soil moisture, snow and ice) has declined by **1cm/year**, with notable implications for water security. At the moment, the amount of **freshwater available and consumable** represents only around **0.5%** of the total amount of water on the planet.

A systemic crisis. Spreading rapidly.

More and more research show the **interconnections between the planetary boundaries**. Solving the climate crisis without tackling the biodiversity loss or land degradation is not an option. The water stress is obviously correlated with climate change, and vice versa. **A "positive" feedback loop is accelerating** both phenomenoms, and accelerating spirale of influence.



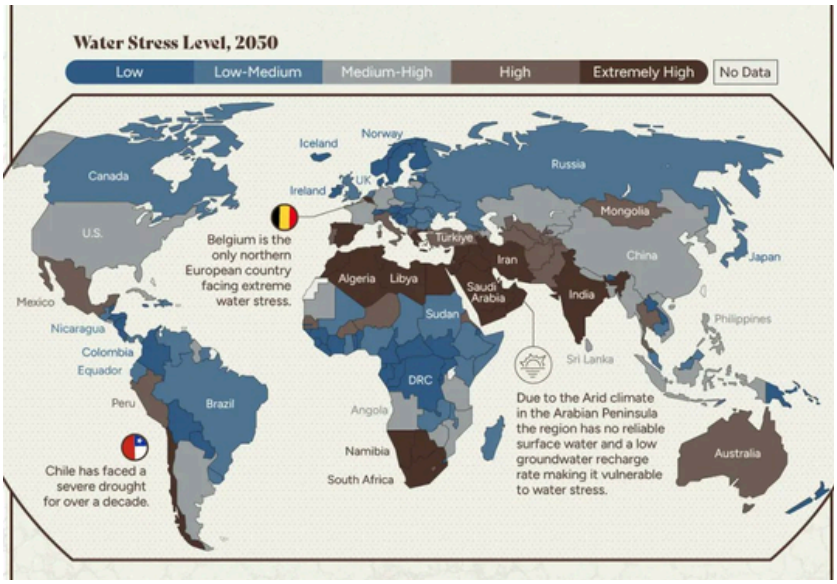
Feedback Loops among Land Degradation, Climate Change and ity Loss

Climate change is disturbing the water cycle. Arid soils "attract" less precipitations, leading to biotic and abiotic stress and desertification, biodiversity loss and accelerated climate change.
Water insecurity also interferes with biodiversity, being linked with local species populations decline and reduced biodiversity (according to WWF 2021, 1 in 3 freshwater species are at risk of extintion).

Source: United Nations Convention to Combat Desertification (2022)

In 2050, **78 countries will suffer from Medium-High to Extremely High Water stress**, representing a large majority of human population. People will be exposed across all continents, with Belgium, Greece and Spain bound to face extremely high water stress in Europe.

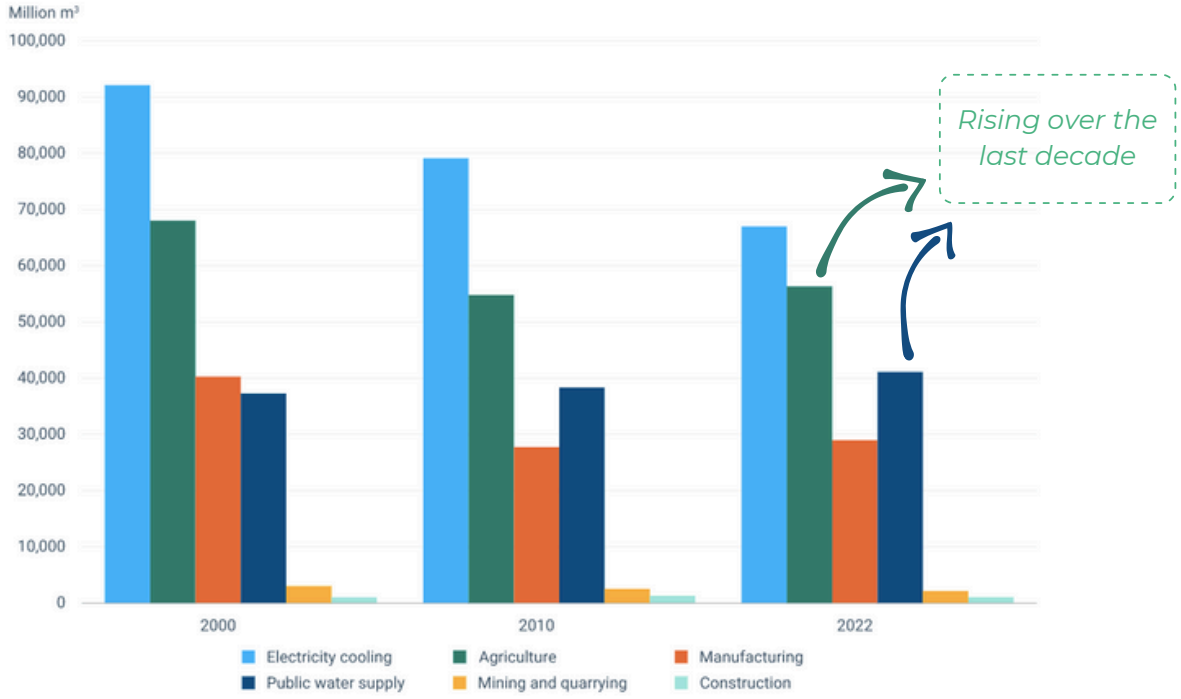
Source: World Resources Institute data based on "Business as Usual" scenario where temperatures increase by 2.8° to 4.6° by 2100. Does not represent access to clean drinking water.
Infographic from reDESIGNS



Water Stress Level - 2050 Prediction

Industries are not all equal in water consumption

Solutions exist. New solutions are emerging. Supply chain transparency, frugality, efficiency and inclusion of local communities are the key drivers of sustainable water management. Water management technologies are important enablers of the transformation. Their roles differ depending on the "water intensive" sector we look into (Water utilities, Real Estate (and thus Public Water as well) and Agriculture).



Freshwater allocation for different sectors (2000-2022)
Source: Waterbase - Water Quantity, European Environment Agency (2023)

Freshwater consumption has evolved across different sectors, with **agriculture** and **public water supply** remaining **among the largest consumers** and showing relatively stable usage over time. Despite long-term fluctuations, these are some of the sectors that continue to rely heavily on freshwater, and therefore technological advancements play a crucial in preventing further increases in consumption that would be expected from the increase in demand. **Digital solutions** such as smart irrigation systems, industrial water recycling, and real-time monitoring tools are **essential for optimizing water use, improving efficiency, and ensuring long-term sustainability**.

Water at the Core

Water utilities, Agriculture and Real Estate have in common that they are by definition **water intensive sectors**. In each of these sectors, Water Tech can be leveraged in different ways with one main objective: **reduce their water consumption.**

Water Utilities

Water Utilities institutions play a critical role in ensuring the continuous supply of clean and safe water for both domestic and industrial use. These systems encompass water transmission, treatment, and distribution networks that are essential for public health, economic stability, and environmental sustainability. However, water utilities face growing challenges such as population growth, climate change, infrastructure aging, and security threats - including physical and cyber risks. To address these issues, modern utilities are increasingly adopting smart technologies like IoT-based monitoring, SCADA systems, and advanced metering infrastructure to enhance efficiency, detect leaks, and improve water quality management. With global water demand expected to rise by 50% by 2050, the integration of data-driven solutions and sustainable water management strategies is crucial for ensuring long-term resilience and resource optimization.

Real Estate

For years, water management was a low priority in the real estate sector (also due to the historically low cost of water), overshadowed by energy efficiency concerns. However, with rising water prices, increasing scarcity, and stricter regulations, water has become a critical focus for property owners and developers. Buildings account for approximately 25% of global water consumption, yet inefficiencies, undetected leaks, and outdated infrastructure contribute to significant waste. To address these challenges, the industry is rapidly adopting smart water technologies, including IoT-enabled sensors, AI-driven analytics, and automated leak detection systems. These innovations provide real-time insights into water usage, optimize consumption patterns, and enhance operational efficiency, leading to lower costs and improved sustainability. Integrating data-driven water management solutions is essential for safeguarding property value, ensuring regulatory compliance, and future-proofing real estate assets against climate-related water risks.

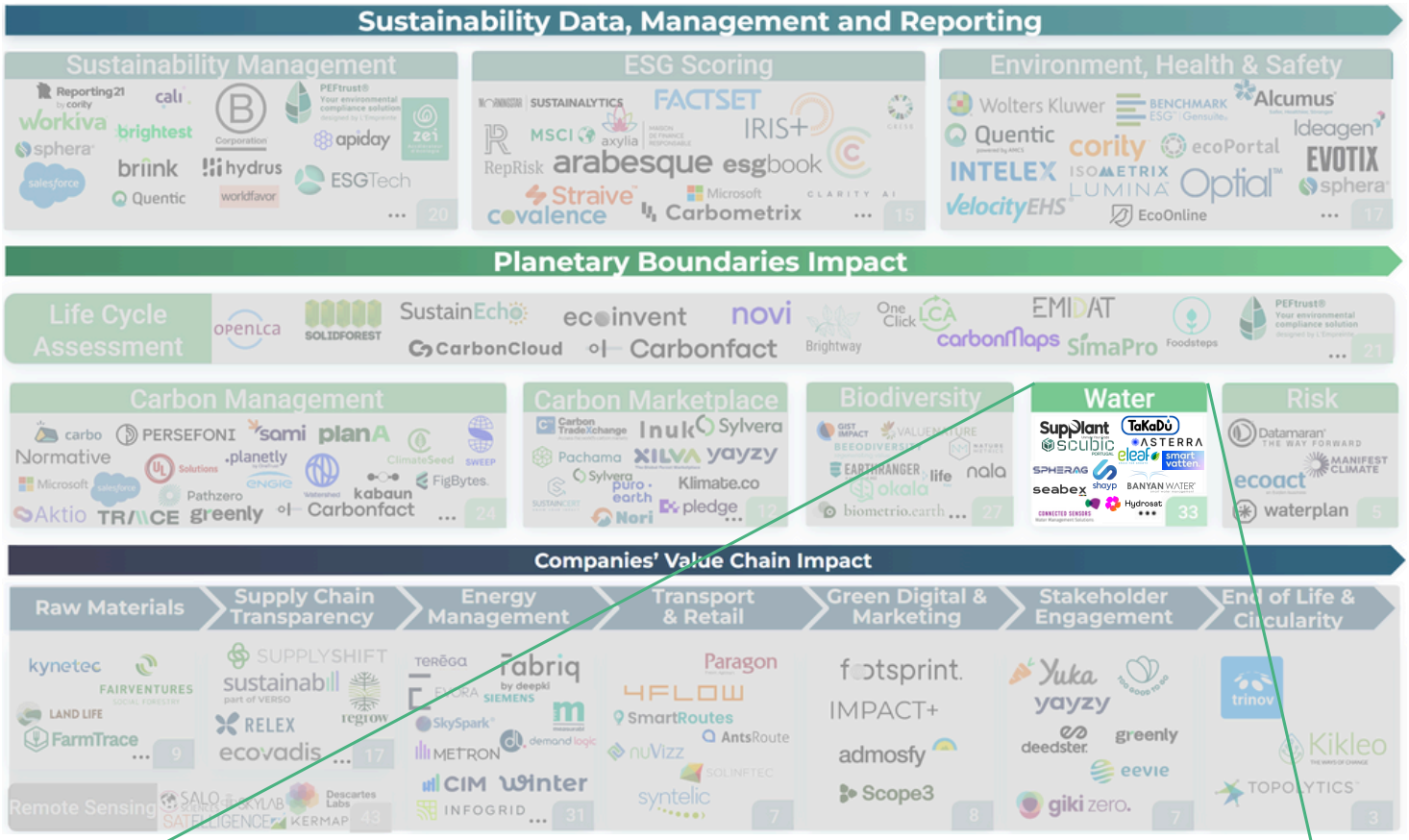
Agriculture

Agriculture is the largest consumer of freshwater, accounting for 72% of global withdrawals in 2023. As a key source of income and food security for 80% of the world's poor, it is highly vulnerable to climate-related risks such as droughts, shifting precipitation patterns, and increasing urbanization, which further strain water availability. With the global population expected to reach 9–10 billion by 2050, ensuring efficient water use in agriculture is crucial for food security.

Advancements in digital technology are revolutionizing water management in the agriculture sector - remote sensing, GIS mapping, AI-driven analytics, and IoT-enabled sensors are enabling farmers to monitor soil moisture, optimize irrigation, and predict water needs with greater accuracy. Precision agriculture enhances efficiency by providing real-time insights, allowing for better resource allocation and improved decision-making. Monitoring systems can help fine-tune irrigation schedules, leading to higher yields, optimized and smarter water use, and time-saving benefits.

Zoom on Water Management

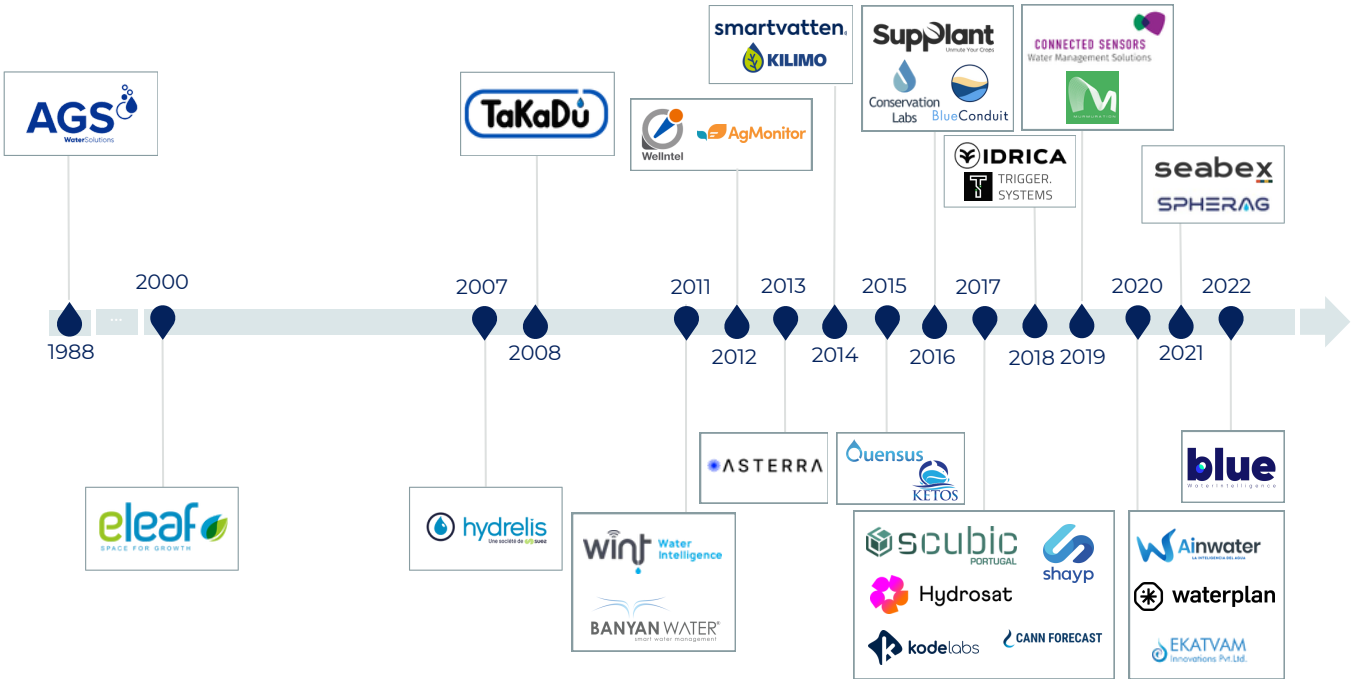
Our **Digital4Impact Tech Radar** maps the solutions across the planetary boundaries and the companies value chain. This report is deepdiving on digital technologies for water management



Water Management Tools

Understanding the water digital tech market

Below you can find the Water Management solutions mapped both according to a timeline and its category group:



Date of creation of companies identified in the Tech Radar

Source: Impact LABS Research & Analysis

The timeline highlights the evolution of water management technology companies, showing an **increasing trend in new solutions** over the past two decades.

Some of the **market implications** include

Rising Investments

The sharp increase in startups signals growing investor interest in water tech innovations.

Regulatory and Environmental Push

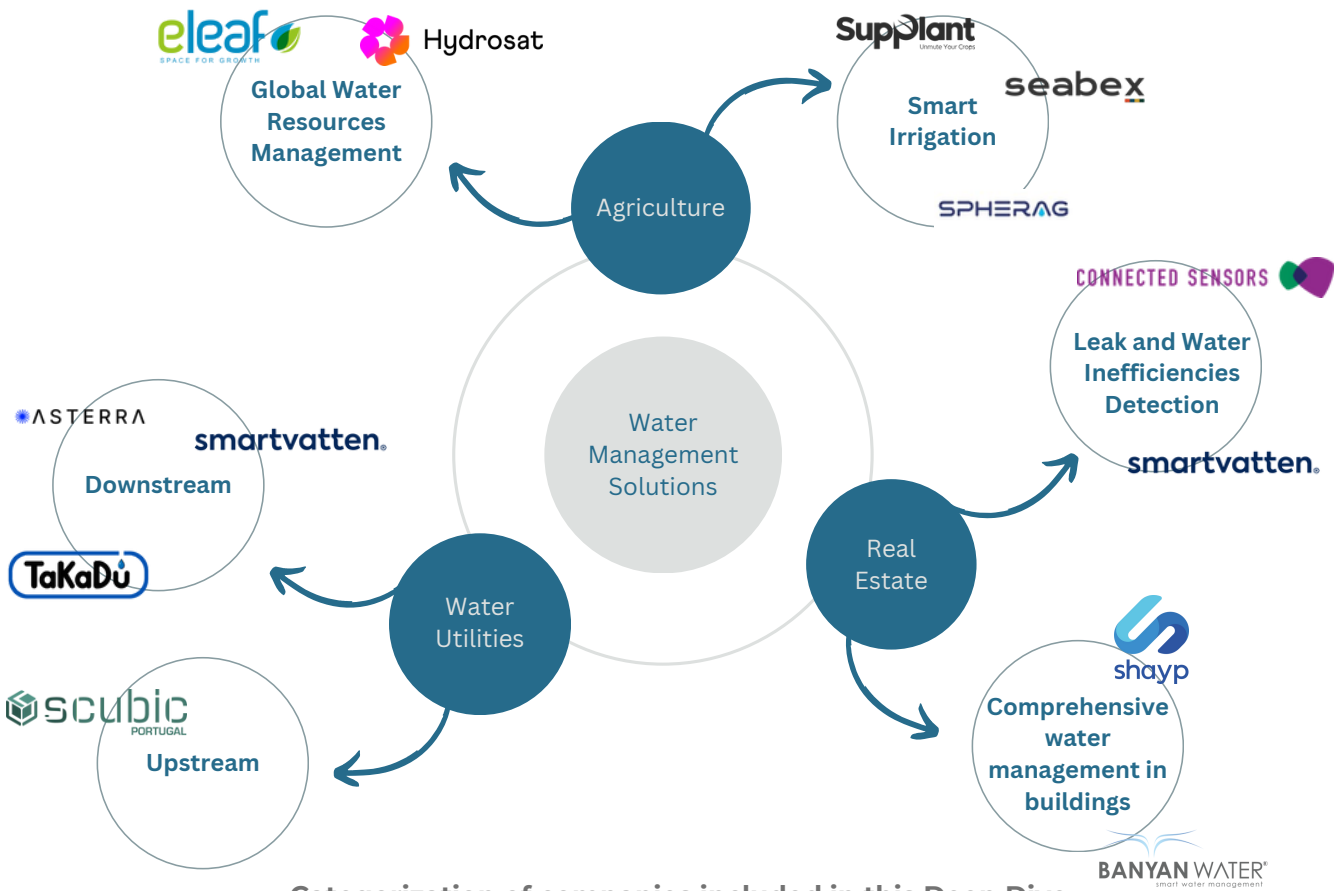
Governments and industries are likely driving demand for efficient, sustainable water use through policies and incentives.

Future Potential

With the adoption of AI, IoT, and predictive analytics, the market is expected to continue evolving toward fully automated and optimized water systems.

Deep dive on solutions representative of the market

As climate change accelerates, concerns about water use are growing. Rising costs and increasing global water stress make efficient water management more critical than ever.
The market is shaped by the industries. Companies can no longer afford a "business as usual" approach - not only because it is not sustainable, but also because it poses risks to their operations.
This deep dive aims to support companies in selecting technologies that enhance water management, ensuring long-term resilience and efficiency.



Categorization of companies included in this Deep Dive
Source: Impact LABS Research & Analysis

For **Agriculture** we distinguished between solutions for Smart irrigation and the broader ones dedicated to Global water resource management, for **Real Estate** between pure leak detection and comprehensive building water management and for **Water Utilities** between downstream and upstream.

For each of these categories, different types of technologies can be activated, as described in the folllowing deep dives.

Water Utilities

In Water Utilities, water technology companies are embracing advanced technologies to enhance efficiency, reduce losses, and ensure sustainable resource management. From **AI-driven leak detection to satellite-based infrastructure monitoring**, companies in this sector are leveraging **data analytics, remote sensing, and smart automation** to optimize operations. The shift towards digital, hardware-free, and easily integrable solutions is transforming water management — enabling real-time decision-making, improving efficiency, and supporting long-term sustainability.

	WATER UTILITIES			
	TaKaDu	ASTERRA	smartvatten.	scubic PORTUGAL
Business Target	Water utilities companies	Water utilities companies	Water utilities companies	Water utilities companies
Geographical Coverage	Canada, USA, Latin America, Europe, Australia	Worldwide	Northern European countries	Portugal, Spain, Brazil
Date of Creation	2008	2013	2014	2017
Vision: Understand where the market is going and/or has an idea to shape the market	★★★★½	★★★★½	★★★★½	★★★★½
Integration Capacity to connect the digital solution with on-the-ground conservation efforts	★★★★½	★★★½½	★★★★½	★★★★½
Services Scope of services provided	★★★★½	★★★½½	★★★½½	★★★★½
Cost Price range and business model of the solution	€€€	€€€	€€€	€€€

If you feel you would like to feature your technology or product on the Digital4Impact Tech Radar, please write to us at techradar@impactlabs.earth

Real Estate

In Real Estate, water technology companies are increasingly shifting their focus **from simple leak detection to comprehensive water management** within buildings. Companies are developing solutions that leverage **easily scalable hardware and software**, often designed for **seamless integration** into existing building infrastructure. The relatively low cost of deploying these water management solutions, is frequently absorbed by a **quick return on investment** (ROI) through reduced water bills and minimized damage from leaks.

	REAL ESTATE			
	BANYAN WATER smart water management	smartvatten.	shayp	CONNECTED SENSORS
Business Target	Offices, Multi-family, Student housing, Campuses, Retail and Hospitality	Logistics, Hospitality, Office buildings, Education, Insurance, Healthcare, Residential, Retail	Multi-residential, Commercial, Retail, Cities, Public organisations, Education, Healthcare, Transport, Logistics, Industrial facilities	Commercial buildings, Multi-residential, Hotel & Hospitality
Geographical Coverage	USA	Europe	Europe	USA
Date of Creation	2011	2014	2017	2019
Vision: Understand where the market is going and/or has an idea to shape the market	★★★☆☆	★★★☆☆	★★★★★	★★★☆☆
Integration Capacity to connect the digital solution with on-the-ground conservation efforts	★★★★☆	★★★☆☆	★★★☆☆	★★☆☆☆
Services Scope of services provided	★★★★☆	★★★☆☆	★★★★☆	★★★☆☆
Cost Price range and business model of the solution	€ € €	€ € €	€ € €	€ € €

If you feel you would like to feature your technology or product on the Digital4Impact Tech Radar, please write to us at techradar@impactlabs.earth

Agriculture

In agriculture, water technology solutions cater to a broad spectrum of needs, from helping small farmers **optimize irrigation** to enabling large water authorities to **manage resources efficiently**. Companies in this sector offer both physical infrastructure and digital tools, but the industry is rapidly moving toward **software-driven solutions**. Scalable and adaptable systems are becoming the standard, ensuring that water management systems remains **efficient, data-driven, and future-ready**.

	AGRICULTURE				
	eleaf SPACE FOR GROWTH	SupPlant Unmute Your Crops	Hydrosat	seabex	SPHERAG
Business Target	Water Autorities	Farmers (various dimensions)	Governants, Policy Makers & Farmers	Farmers	Installators
Geographical Coverage	Global	Global	Global	France, Tunisia	Europe
Date of Creation	2000	2016	2017	2020	2020
Vision: Understand where the market is going and/or has an idea to shape the market	★★★★☆	★★★★☆	★★★★★	★★★★★	★★★☆☆
Integration Capacity to connect the digital solution with on-the-ground conservation efforts	★★★☆☆	★★★☆☆	★★★★☆	★★★★☆	★★☆☆☆
Services Scope of services provided	★★★☆☆	★★★☆☆	★★★★☆	★★★★☆	★★★☆☆
Cost Price range and business model of the solution	€ € €	€ € €	€ € €	€ € €	€ € €

Capabilities

If the water mangement technologies offer a wide range of capabilities that can vary from one sector to another, we focused on the evaluation of features that are common to all sectors. The parameters used for the assessment of the capabilities of the solutions from the three sectors are the following:

Integration with existing tools

Ability of the solution to connect and interact with existing infrastructure, applications, and data sources through robust APIs, standard protocol support, and compatibility with multiple data formats, facilitating efficient data exchange and interoperability.

Predictive Analysis

The capability of the solution to use historical data and algorithms to forecast future trends and outcomes. It involves assessing the accuracy and reliability of predictive models and the solution's capacity to handle complex data sets to produce actionable predictions. Key features include machine learning algorithms, time-series analysis, and predictive modeling tools that enable organizations to make informed decisions based on anticipated future conditions.

Impact Measurement

Capability of the solution to quantify and demonstrate its effects, such as water savings, carbon reductions, cost savings, and the number of leaks detected. This includes providing robust analytics, reporting, and tracking capabilities to measure KPIs and ROI. Evaluations consider the clarity and relevance of metrics, the ability to customize reports, and the availability of tools for visualizing and interpreting data effectively

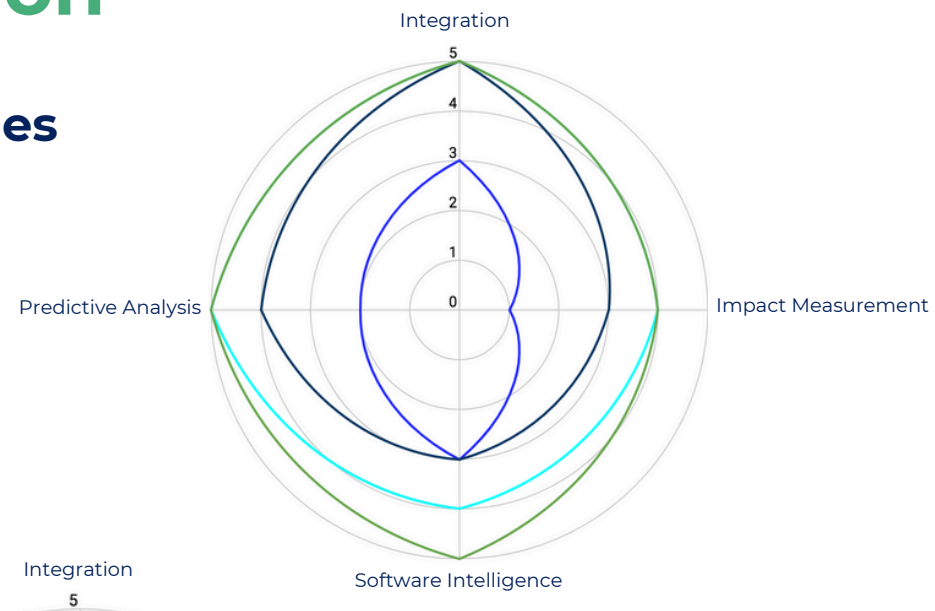
Software Intelligence

Capability of a solution to analyze data and generate meaningful insights that inform decision-making. This includes the identification of patterns, trends, and anomalies within data, the presentation of information through dashboards and visualizations, and the ability to drill down for deeper analysis.
For **water utilities**, this parameter also include automation potential, i.e. the capability of automating equipment operations according to the meaningful insights, ultimately enhancing operational efficiency and optimizing equipment performance.

Capability-based solution evaluation

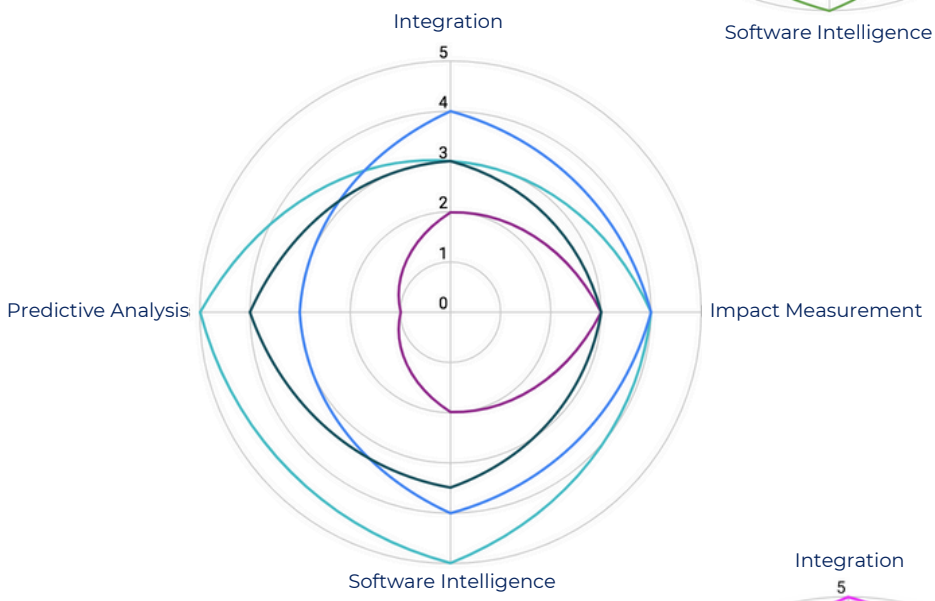
Water Utilities

TaKaDu
ASTERRA
smartvatten.
scubic PORTUGAL



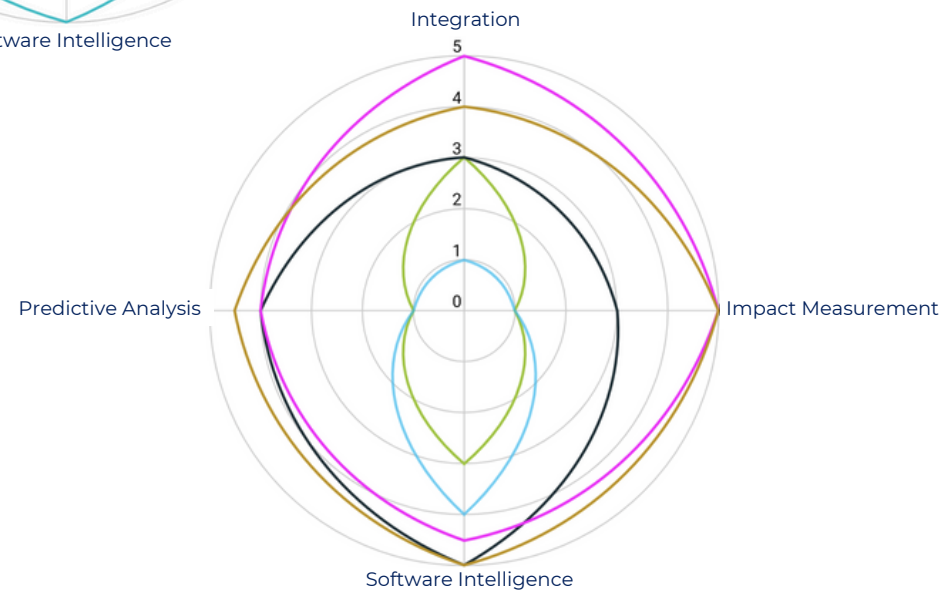
Real Estate

BANYAN WATER
shayp
smartvatten.
CONNECTED SENSORS



Agriculture

eleaf
SupPlant
Hydrosat
seabex
SPHERAG



Source: Impact LABS Research & Analysis

WATER UTILITIES

Business Target	Geographical Coverage	Date of Creation
Water utilities companies	Canada, USA, Latin America, Europe, Australia	2008

Summary:

TaKaDu provides water utilities with a solution that uses advanced data analytics and AI to detect leaks and operational issues in real-time. With a cloud-based solution with zero on-premises footprint, it operates without requiring additional hardware, integrating data from multiple sources to help companies optimize performance and reduce water loss. The solution has the ability to detect asset failures early, often before other indicators are present.

Impact:

- Detects water leaks and reduces water loss;
- Detects pressure failure (including but not limited to PRV and meter issues), sewer, and telemetry;
- Analyses quality indicators (e.g., water pH, turbidity).

VISION

TaKaDu is driven by innovation and strives to make a difference in the water utilities sector by helping its partners optimize operations and reduce water loss. Besides reducing water loss, TaKaDu's goal is to enhance operational efficiency and retain professional and organizational knowledge.

INTEGRATION

The solution integrates with existing meters and solely relies on already existing data with no need for additional hardware.

SERVICES

- Cloud-based solution with real time water monitoring and regular software updates;
- Real time AI leak detection and localization;
- Production of monthly reporting;
- Platform for managing incidents along their lifecycle, from detection till fixing the problems
- Client community that supports knowledge-sharing and best practices.

COST

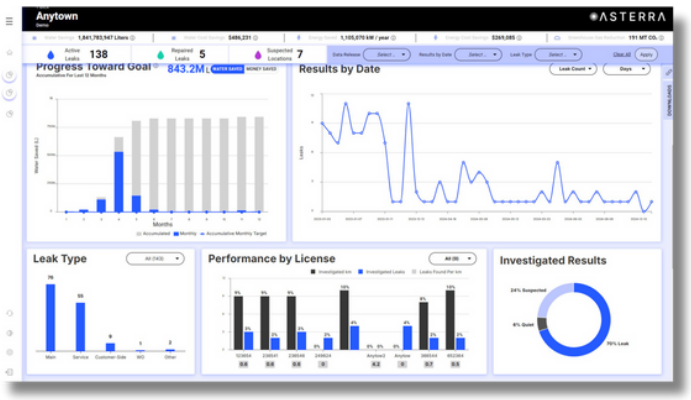
- Minimum 1 year subscription to the solution;
- The cost is usually per household per year and it varies with project size.

Cost available upon request

WATER UTILITIES

ASTERRA

Business Target	Geographical Coverage	Date of Creation
Water utilities companies	Worldwide	2013



Summary & Impact

- Satellite Imagery - covering a vast area;
- Synthetic Aperture Radar (SAR) - monitoring in depth;
- AI and Algorithms - information gathering and development for infrastructure management

Portfolio:

- **Recover** (Underground leak detection at city scale)
- **MasterPlan** (Overall network assessment and infrastructure renewal planning)
- **EarthWorks** (Mapping soil moisture levels for railway tracks, dykes, ...)

VISION

★★★★★

Asterra uses advanced satellite technology to detect underground water leaks by analyzing real-time data, rather than relying on predictions. Their focus is on providing highly accurate, actionable insights to reduce water losses on public water networks.

INTEGRATION

★★★★★

They use the satellite to provide the needed images to identify potential water leaks and a report with their analysis. Their technology is independent of the company's already existing hardware or software.

SERVICES

★★★★★

- Comprehensive Reports – Their reports include KPIs, such as the number and precise location of leaks;
- High-Precision Leak Detection – Their technology can detect underground leaks with approximately 100-meter accuracy;
- Large-Scale Analysis – The satellite-based approach allows them to scan thousands of km of pipeline networks in a single analysis.

COST

€ € €

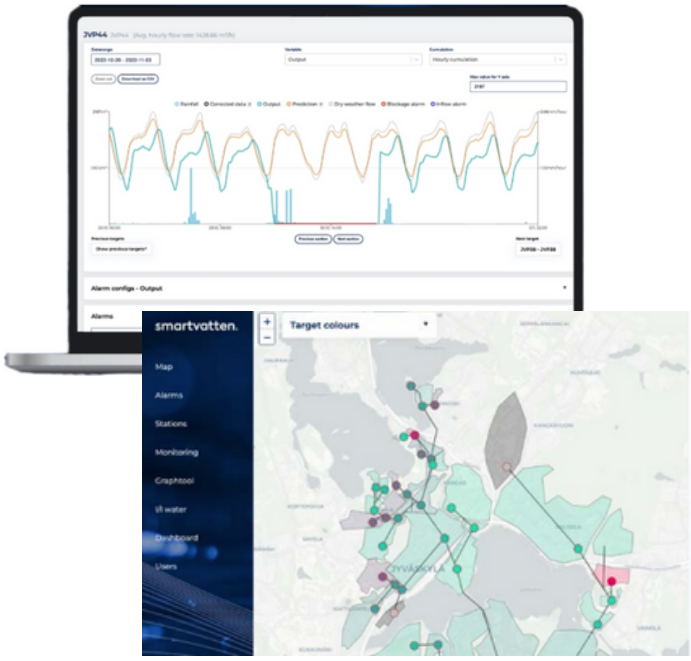
- 30.000-50.000€ for 500km of water distribution pipelines.

WATER UTILITIES

smartvatten

Business Target	Geographical Coverage	Date of Creation
Water utilities companies	Northern European countries	2014

*Also included on the Real Estate scope



Summary

Smartvatten provides water utilities with a solution that utilizes advanced data analytics and AI to detect leaks and operational issues in real-time. The platform integrates data from various sources without requiring additional hardware, enabling utilities to optimize performance and reduce water loss.

Impact

- Water Savings – Prevents waste and lowers costs.
- Efficiency – Optimizes network performance.
- Sustainability – Supports ESG goals.

VISION

★★★★★

SmartVatten aims to consolidate the extensive data collected from water and wastewater networks into a single platform, improving the management of water networks.

INTEGRATION

★★★★★

The solution integrates with existing meters and solely relies on already existing data with no need for additional hardware.

SERVICES

★★★★★

- Real time water monitoring;
- Integrates multiple data sources, including client data and weather reports, to detect leaks and blockages in the piping system;
- Customizable dashboard tailored to each customer's needs;
- Interactive map view for a clear overview of the client's network.
- Can also provide information on wastewater flow;
- Periodic and automatic software updates.

COST

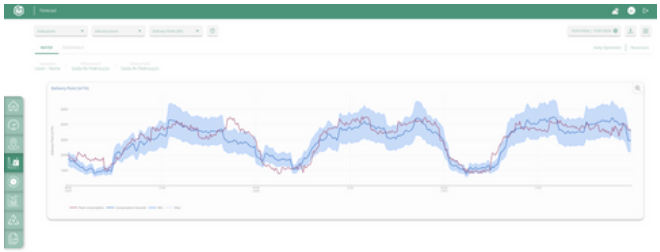
€ € €

- **OPEX:** Starting at 30.000€/year.

WATER UTILITIES

scubic PORTUGAL

Business Target	Geographical Coverage	Date of Creation
Water utilities companies	Portugal, Spain, Brazil	2017



Summary

SCUBIC provides innovative smart solutions for water utilities, focusing on real-time data integration and actionable insights to optimize operations, reduce costs, and meet environmental goals. Their modular platform enhances decision-making and provides support for better management. SCUBIC distinguishes itself by its specialized focus on optimizing upstream water management, specifically addressing the challenges of water intake

Impact

- Energy Efficiency – Significantly reduce energy consumption;
- Cost Savings – Lower energy use translates to decreased operational expenses;
- Sustainability – Enable companies to minimize their carbon footprint;
- Water consumption - provides insights regarding the water distributed

VISION

★★★★★

SCUBIC strives to lead in smart and sustainable water management by utilizing advanced AI solutions to boost the efficiency and sustainability of water utilities. Their focus on transforming data into actionable insights addresses critical challenges in water management, leading to better resource utilization and reduced environmental impact.

INTEGRATION

★★★★★

The solution integrates with existing meters and databases, allowing to consolidate the data with no need for additional hardware.

SERVICES

★★★★★

- Real time water monitoring;
- Integration of AI and digital twins technology;
- Modular platform, adaptable to customer needs;
- Energy and water demand prediction, including detection of leaks;
- Monitoring of relevant KPIs for water, energy, costs and hydraulic balance performance;
- Automatic insights for optimization of water pumping stations;
- Chatbot integrated in the tool for better customer support.

COST

€ € €

OPEX Costs:

- Installation: 0.05€/m^3
- Maintenance: 0.0125€/ m^3

OPEX Savings:

- Up to 10-21%

In the price above, all the modules are included

REAL ESTATE

BANYAN WATER®
smart water management

Business Target	Geographical Coverage	Date of Creation
Offices, multi-family, student housing, campuses, retail and hospitality	America	2011

Summary

Banyan Water is a water management tool, addressing both indoor and outdoor water consumption for buildings. The solution allow to detect leaks and water inefficiency thanks to AI. Real time consumption analytics and alerts are accessible by the operator which can act remotely to cut off the water supply.

Impact

- Indoor Water Management: Banyan Water helps businesses **reduce indoor water consumption by an average of 20-30%** through leak detection, fixture monitoring, and efficiency improvements.
- Irrigation Management: irrigation solutions can lead to **reductions of 30-70% in outdoor water use** through optimized scheduling and smart controllers

VISION

★★★★★

Banyan water aims to revolutionize water conservation for real estate **both inside and outside the building**

INTEGRATION

★★★★★

- Solution includes hardware that **integrates with existing meters** (impulse meters). If necessary new meters can be installed
- Software can connect to third-party tools to collect useful data
- Automation possible with **automatic and remote water shut-off**

SERVICES

★★★★★

- Real time water monitoring
- Real time AI leak detection and localization (maps providing location of leaks or broken equipment for irrigation service)
- Quantification of savings (L, € and CO2)
- Production of monthly reporting
- Remotely and automatic water shut-off
- No recommendations provided through the platform

COST

€ € €

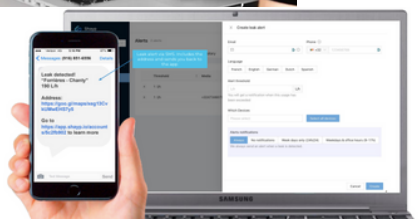
- Prices vary according to the amount of hardware needed (meters and controllers), number of irrigated zones and properties. Volumetric prices decreasing with the number of purchases.

E.g.: for a 20 000 sqm the price would be around 1500€/year.

REAL ESTATE

shayp

Business Target	Geographical Coverage	Date of Creation
Multi-residential, commercial and retail, cities and public organisations, education, healthcare, transport and logistics, Industrial facilities	Europe	2017



Summary

Shayp, a certified B-corp, provides a powerful water management solution for real estate. By retrofitting existing water meters with a non-invasive technology, Shayp provides effortless 24/7 remote monitoring and forecasting. The AI-powered software analyses water flow patterns to identify anomalies that indicate leaks and areas for improvement. The system empowers customers to reduce and prevent leakage damage and track water inefficiencies.

Impact

- Water consumption and water savings insights
- Real-time monitoring and forecasting
- Carbon emissions avoided
- Priorities identification
- Budget calculation
- ROI calculation, including for new investments

22% water savings in average

VISION

★★★★★

Shayp is a Bcorp company with a strong vision for holistic water management, that goes beyond leak detection. They have developed a proactive approach, using IoT and AI to provide insightful recommendations

Certified B Corporation

INTEGRATION

★★★★★

- **Open API** for easy integration with existing hardware and software
- Solution includes hardware, compatible with **pulse meters and can support MBUS**, new meters can be installed if necessary to better understand water consumption by use
- No possibility of automation

SERVICES

★★★★★

- **Site diagnosis:** actual situation audit, water mapping synoptics and consolidated water accounting
- **Site monitoring:** water monitoring reports, water consumption forecast, anomaly alerts
- **Deploy strategy**: recommendations, water management plan and prioritisation
- **Expand water goals:** ROI calculation for new investments

COST

€ € €

- **Activation fees:** 300€/meter
- **Subscription fee:** 30€/meter/month
- **ROI in average in less than a year**

REAL ESTATE

smartvatten.

Business Target	Geographical Coverage	Date of Creation
Logistics, Hospitality, Office Buildings, Education, Insurance, Healthcare, Residential,Retail	Europe	2014

Summary

SmartVatten enables real estate companies to achieve tangible improvements in water efficiencies and build sustainable practices across their portfolios. Using non-invasive technology - installed on existing water meters - and AI, SmartVatten provides real-time and accurate water data, analysis of water consumption and leak detection. The water data is consolidated in a software, the SmartVatten Hub, enabling the creation of effective portfolio-wide water management strategies.

Impact

- **Real time monitoring** - instant access to water usage data, helping spot issues before they become costly problems.
- **Automated reporting** - monthly detailed reports
- **Cost savings** - water-saving strategies backed by data can be implemented

20% water savings in average

VISION

★★★★★

Focus on leaks detection for real estate and **specialist in portfolio-level management**, SmartVatten is dedicated to provide accurate and minute water data.

INTEGRATION

★★★★★

- **Open API** for easy integration with existing hardware (e.g. smart water meters) and software
- Solution includes **hardware,** collecting data through **visual reading**. New meters and submeters can be installed to meet customer needs
- No possibility of automation

SERVICES

★★★★★

- Water consumption and water savings insights (ROI calculation)
- Historical data for comparison
- Portfolio-level insights
- Leaks detection and alerts
- Rank of meters in terms of efficiency
- SmartVatten index as an indicator of water performance
- No recommendation included in the platform

COST

€ € €

- **Activation fee:** 100€/meter the first year
- **Subscription fee:** 350€ to 950€/meter/year
- ROI calculator included in the software

REAL ESTATE

CONNECTED SENSORS

Business Target	Geographical Coverage	Date of Creation
Commercial buildings, multi-residential, hotel & hospitality	America	2019

Summary & Impact

Connected sensors provides smart water systems consisting in hardware and software for 24/7 water monitoring and flood detection. Different types of sensors can be deployed - water flow, leak detection sensors, flood sensors - and retrieve data to the central monitoring platform which provides users with real-time insights into water consumption and alerts for leaks and floods.

Impact

- Money savings
- Risk mitigation
- Proactive maintenance possibility
- Sustainability enhancement (carbon and water reduction)

VISION

★★★★★

Connected Sensors is convinced that a better water management involves **real time measurement**. They developed a suite of innovative solutions to improve the whole water ecosystem in real estate

INTEGRATION

★★★★★

- **No integration** with existing equipment and software
- Each of Connected Sensors' solution include a **different hardware** that can be easily installed
- **Possibility of automation** for some solutions

SERVICES

★★★★★

- **Flood prevention.** Sensors installed in high risk area, coupled with shut-off valves and smart system: 24/7 flood monitoring, remote access and control, instant alert notifications, real-time and historical data analysis, user training and support
- **Water monitoring and conservation.** Full process deployment: *(1) Audit and current situation assessment, (2) analysis thanks to AI, (3) Technologies implementation, (4) 24 hour monitoring and control*

COST

€ € €

Two business models:

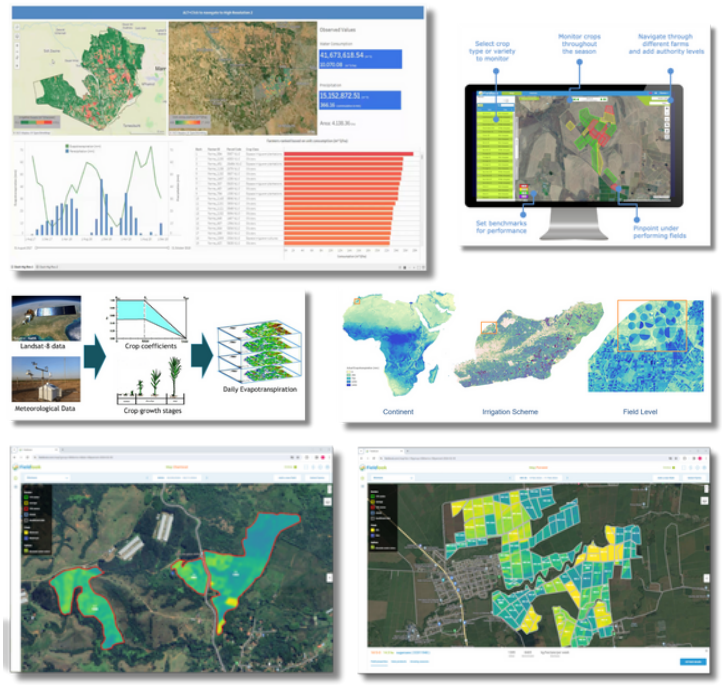
- Investment
  - Hardware from 500$/meter
  - Software from 500$ annual fee/meter
- Monitoring as a service
  - Annual fee from 72$ to 1000$/equipment depending on the type of solution

See the commercial price list on the website

AGRICULTURE

eleaf
SPACE FOR GROWTH

Business Target	Geographical Coverage	Date of Creation
Water Authorities	Global	2000



Summary

eLEAF specializes in converting satellite observations into actionable and scalable data for sustainable water management. The core technology focuses on **evapotranspiration** and **biomass production** to optimize water use efficiency both for field level improvements as well as operational global data sets. eLEAF provides all water productivity data for FAO's WaPOR portal. With a strong global presence, eLEAF solutions cater to agri-multinationals that aim to improve their water stewardship - water authorities, and policymakers, as well as large institutions such as the World Bank.

Impact

- Sustainable water use from field to basin, provided at a global scale.

VISION

eLEAF's mission is to create real-time, globally available datasets at the highest quality to power solutions that are easy to use, affordable and relevant for **sustainable crop production**, **fair allocation of available water**, and a **climate-resilient agricultural sector** world-wide.

INTEGRATION

- **Fully satellite-based** solutions, no equipment purchase required (global coverage at 300m resolution; field-scale data at 10m resolution)
- Integration with exiting platform via API connections
- Primarily a visualization tool

SERVICES

- **Water Consumption Dashboards** (Visualizes spatial/temporal water usage trends; Supports policy decisions on water distribution and stress areas)
- **Irrigation Detection and Guidance** (supports water authorities tracking compliance with water quotas)
- **FieldLook Portal** (supports large-scale farmers keeping track of on-farm water use)

COST

Cost of the solutions vary according the type of solution:

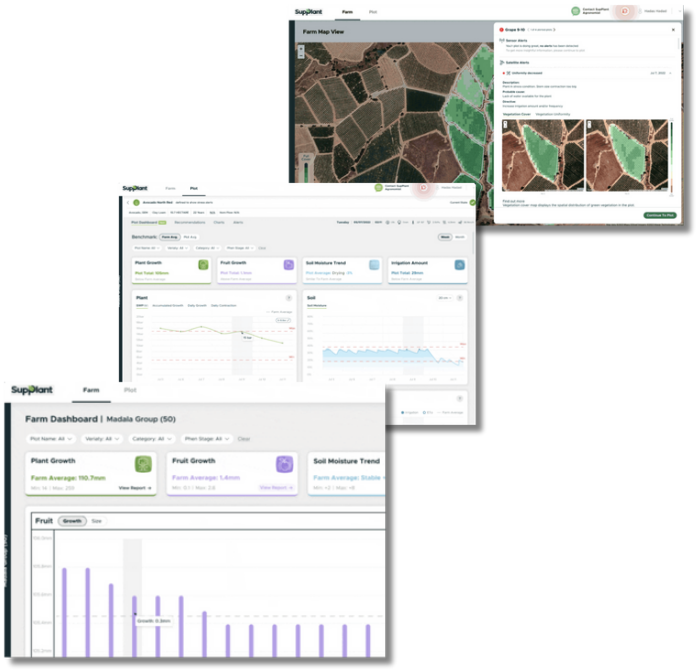
- Usually charged per area (hectare or km^2) and per period (year or season)
- In case software is provided (SaaS) license fees are applicable

Cost available upon request

AGRICULTURE

SupPlant
Unmute Your Crops

Business Target	Geographical Coverage	Date of Creation
Farmers (various dimensions)	Global	2016



Summary

SupPlant is an agriculture-focused water management technology provider offering both **sensor-based** (real-time data) **and sensorless** (every three days to weekly insights) irrigation solutions. The company aims to **optimize water usage** and **improve farming efficiency** through data-driven insights tailored to different types of crops.

Impact

- Optimize irrigation practices: water and costs saving
- Irrigation recommendations: enhancing crop's productivity

VISION

★★★★★

SupPlant aims to shape the future of **precision irrigation** by making data-driven water management accessible to both large and small-scale farmers.

INTEGRATION

★★★★★

- **Sensor-Based Solution**: Requires specific SupPlant-provided sensors (included in the subscription)
- **Sensorless Solution**: Irrigation insights based on satellite, weather forecast (meteorological data to refine irrigation schedules) and other external data sources

No integration with existing hardware or software

SERVICES

★★★★★

- **AI-powered** system
- **Data Visualization & Reporting** - dashboards with actionable recommendations according to different crop types
- **Real-Time Alerts** - regarding heatwaves, water stress, and soil moisture

COST

€ € €

- **Sensor-Based Solution**: $150-$200 per hectare per year (target: large scale)
- **Sensorless Solution**: $1-$2 per hectare per month or $20 per hectare per year (target: small scale)

AGRICULTURE

Hydrosat

Business Target	Geographical Coverage	Date of Creation
Governants, Policy Makers & Farmers	Global	2017

Summary

Hydrosat is a satellite-based precision agriculture company specializing in thermal infrared imagery to optimize irrigation and crop management. Its flagship product, IrriWatch, leverages high-resolution thermal data from a 16-satellite constellation to monitor evapotranspiration, soil moisture, and root zone conditions. This sensorless approach enables farmers to make data-driven irrigation decisions, minimizing water usage while maximizing crop yields.

Impact

- Improves irrigation efficiency by determining the optimal water amount and timing for irrigation.
- Reduces water runoff and percolation losses.
- Provides crop production forecasting, allowing for better financial planning (insurance, loans).
- Helps optimize irrigation without requiring on-field sensors.

VISION

★★★★★

Hydrosat provides irrigation and crop management solutions to help governments preserve water while increasing farmers' crop yields. Enhancing IrriWatch's capabilities to improve water efficiency and deliver 10% higher yields annually through continuous refinement of thermal imaging data and integration with precision irrigation models.

INTEGRATION

★★★★☆

- Uses a 16-satellite constellation for high-frequency, high-resolution thermal and multispectral imagery
- SEBAL model to determine evapotranspiration and soil moisture at the root zone
- API access for custom integration into farm management software

SERVICES

★★★★☆

- Field Irrigation Planning (daily recomendations)
- Regional Irrigation Diagnosis (monthly reports)
- Crop Production Monitoring (seasonal insights)
- Field Production Forecasting (monthly yield predictions)
- High-Resolution Thermal Data
- Mobile and web platforms for real-time field monitoring

COST

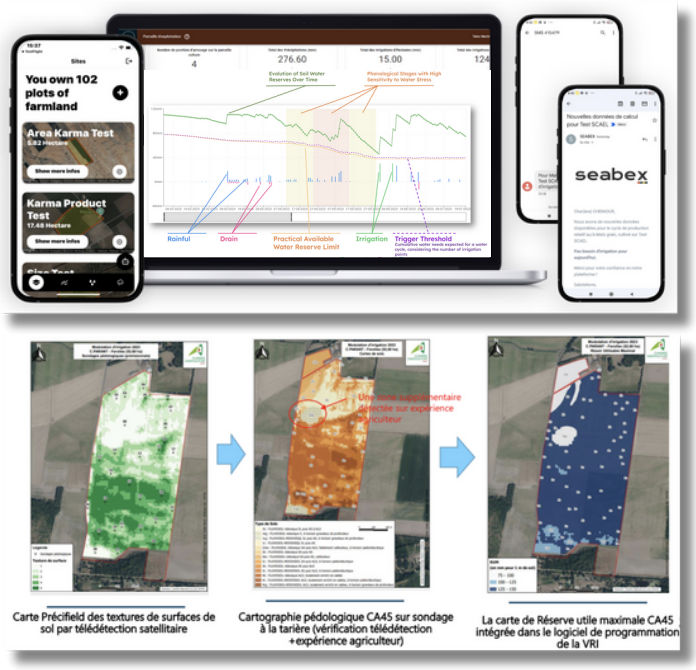
Subscription-based model with pricing tiers based on farm size and data access.

Cost available upon request

AGRICULTURE

seabex

Business Target	Geographical Coverage	Date of Creation
Farmers (various dimensions)	France, Tunisia	2020



Summary

Seabex is a precision irrigation technology provider leveraging AI-driven, sensorless irrigation decision support. Their solution optimizes water usage and crop yields using a combination of real-time climate, soil, and vegetation data. Seabex achieves 95% accuracy in irrigation planning without the need for on-field sensors. Their target customers range from small farmers to larger agribusinesses.

Impact

- Helps farmers compare field performance based on AI-driven insights
- Water savings up to 30%
- Increase in crop yields of 20%

VISION

★★★★★

Seabex helps with irrigation management, taking into account plot-specific data and climate. Aims to become a global leader in sensorless precision irrigation, offering a scalable alternative to traditional methods.

INTEGRATION

★★★★★

- Fully sensorless: satellite imagery (resolution 10x10, 3x3)
- Flexible data import (including weather forecasts adn climate field view)
- Not conceived for automation

SERVICES

★★★★★

- Real-time tracking (soil moisture levels and water consumption trends)
- Precise recommendations on when and how much to irrigate (smart scheduling for drought and water stress prevention)
- Web, mobile app, SMS, e-mail
- Instant field updates through AI-powered virtual assistant (Magonia AI)

COST

€ € €

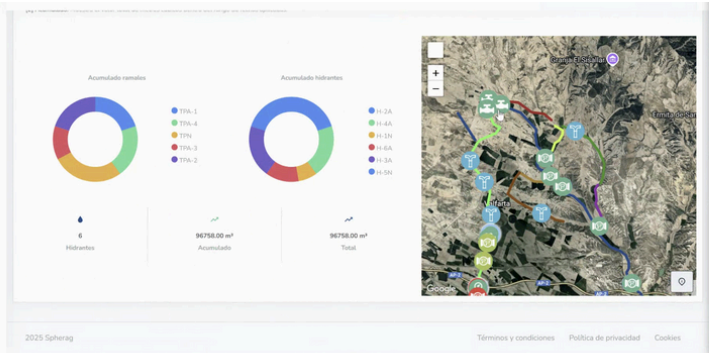
Subscription-Based Model (Annual Plans):

- €250/year for up to 7 plots
- €299/year for up to 20 plots
- €500/year for up to 40 plots
- Custom pricing for larger farms

AGRICULTURE

SPHERAG

Business Target	Geographical Coverage	Date of Creation
Installators	Europe	2020



Summary

Spherag is an agricultural technology company specializing in IoT solutions for efficient water management. By integrating IoT with cloud services, Spherag facilitates digital transformation in agriculture, offering a seamless and scalable ecosystem. Its solar-powered devices with cloud-based software (Atlas IoT devices) enabe users to monitor and control irrigation systems remotely in real-time.

Impact

- Water conservation
- Cost savings
- Enhanced crop quality

VISION

★★★★★

Spherag aims to help customers to efficiently manage and automate irrigation sites & water districs by offering integrated solutions combining IoT & Cloud services.

INTEGRATION

★★★★★

- Hardware must be provided by Spherag - IoT devices, powered by solar panels with built-in SIM cards (fully autonomous)
- No possibility for integration

SERVICES

★★★★★

- Dashboard for real-time visualization
- Customizable alerts for system anomalies
- Remote valve and pump control (no wiring required)
- Future AI-based recommendations

COST

€ € €

- One-time purchase model – Customers pay upfront for the device (100€) and get free access to the platform (defined period)
- Subscription model – Customers pay an annual fee after the initial hardware investment

Conclusion

The future is smart. Automation and data-driven decision-making are accelerating the transformation of the world - faster, more efficient, more effective. Our focus is on solutions that not only follow this evolution, but direct it towards a positive impact.
The global water crisis is escalating, it's already being felt. That's why the race to shift the paradigm and the way we manage the systems that encompass this vital resource has long since begun, even with some insistence on ignoring it. This Tech Radar endeavours to highlight the crucial role of digital technologies as key enablers of the transformation that is needed in 3 water-intensive sectors: Water Utilities, Real Estate and Agriculture.

Market trends

- **Increasing Innovation**

The timeline of company creation indicates a significant surge in new water management solutions over the past two decades, signaling a growing recognition of the urgency and opportunity in this sector.

- **Rising investments**

The sharp increase of solutions in the water management sector in the last decade indicates growing investor interest and a recognition of the market potential.

- **Regulatory and environmental push**

Growing sustainability demands, coupled with the financial benefits of efficient water technologies, are driving innovation. These pressures not only support faster tech adoption but also help companies attract eco-conscious clients.

- **Data-Driven Approach**

A central theme across all sectors is the increasing reliance on data analytics, AI, and IoT-enabled sensors to provide real-time monitoring, detect inefficiencies, predict future trends, and automate operations.

- **Integration of diverse data sources**

Some solutions are starting to prioritize seamless integration with existing infrastructure and data sources, often without requiring significant additional hardware. Platforms that can integrate data from various sources, including smart meters, satellite imagery, weather reports, and existing operational systems, are becoming more sophisticated and valuable.
Scalability and adaptability are also key, ensuring that solutions can cater to a wide range of users and evolving needs.

- **Growing Focus on Impact Measurement**

Some solutions are starting to prioritize seamless integration with existing infrastructure and data sources, often without requiring significant additional hardware. Scalability and adaptability are also key, ensuring that solutions can cater to a wide range of users and evolving needs.

- **Emphasis on user-friendliness and accessibility**

For widespread adoption, water technologies must be intuitive, easy to integrate, and accessible to a range of users—from operators to decision-makers. Complex systems with steep learning curves risk low engagement, while user-friendly solutions boost acceptance, efficiency, and long-term impact.

Conclusion

Challenges

- **Integration with existing infrastructure**

While many solutions emphasize integration, challenges may still arise in connecting diverse and aging infrastructure, particularly in Water Utilities.

- **Cost of implementation**

While ROI is often highlighted, the initial investment in hardware, software, and integration can be a barrier, especially for smaller organizations or farmers.

- **Resistance to change**

Despite the clear environmental and economic benefits of emerging water technologies, adoption is often hindered by skepticism around reliability or cost-effectiveness. Change management, user buy-in, and adequate training remain critical challenges.

Industry-Specific Water Management

While the overarching goal is water consumption reduction, the application of the technologies varies significantly across Water Utilities, Real Estate, and Agriculture.

Water Utilities focus on leak detection (reduce water losses), infrastructure monitoring (enhanced efficiency), and ensuring water quality management.

Real Estate is moving towards comprehensive water management within buildings, beyond just leak detection, is focusing on ROI (lower water consumption and, therefore, costs), minimizing damages on the buildings and improving sustainability and regulatory compliance.

Agriculture, being the largest consumer, leverages technologies for smart irrigation practices and better global water resource allocation to enhance efficiency.

Water scarcity is unfortunately going to ramp up in a very near future. Beyond the fundamental changes that we will need to embrace in our relationship to water to make sure we better value this resource and are more frugal in our usage, the Water Management Tech market is bound to develop quickly in the years to come. We will see the emergence of new players and growing funding as the risk for many supply chain will materialize.

At Impact Labs, we have the full capacity and experience to support organisations in assessing their materiality, prioritising actions within a robust sustainability strategy, and selecting the appropriate tool for maximum impact reduction.

The next stage is contributing to nature regeneration and (re)building of natural capital, which needs to be done with appropriate due diligence of Nature-based Solution projects.

Sources

Connected Sensors. (2024). *The Truth About Water and Insurance Premiums in Real Estate.*
https://connectedsensors.com/blog/the-truth-about-water-and-insurance-premiums-in-real-estate/

Connected Sensors. (2024). *Water Efficiency: The New Frontier in Real Estate.*
https://connectedsensors.com/blog/water-efficiency-the-new-frontier-in-real-estate/

Connected Sensors. (2024). *Water sustainability in real estate.*
https://connectedsensors.com/blog/water-sustainability-in-real-estate/

Connected Sensors. (2024). *What Toronto's Water Meter Crisis Reveals About the Need for Accurate Consumption Tracking.*
https://connectedsensors.com/blog/what-torontos-water-meter-crisis-reveals-about-the-need-for-accurate-consumption-tracking/

Cosgrove, W. J., & Loucks, D. P. (2015). *Water management: Current and future challenges and research directions.* Water Resources Research, 51(6), 4823-4839.
https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1002/2014WR016869

Ercan, T., & Kutay, M. (2021). *Smart cities critical infrastructure recommendations and solutions. Solving urban infrastructure problems using smart city technologies: Handbook on planning, design, development, and regulation* (pp. 503-541)

European Environment Agency. (2024). Waterbase - Water Quantity
https://www.eea.europa.eu/en/datahub/datahubitem-view/a4324714-784a-4763-b8b9-b8939ead87fe

Intergovernmental Panel on Climate Change. (2022). *Climate change 2022: Impacts, adaptation, and vulnerability, the Working Group II Contribution.*
https://www.ipcc.ch/report/ar6/wg2/chapter/chapter-4/#4.5.4

Lodha Group. (2023). *Water conservation and management in real estate development.*
https://www.lodhagroup.com/blogs/sustainability/water-conservation-management-real-estate-development

SandTech. (2025). *Smart water infrastructure: Transforming water management.*
https://www.sandtech.com/insight/smart-water-infrastructure-transforming-water-management/

SmartFlow Monitoring. (n.d.). *Water monitoring within the real estate sector.*
https://www.smartflowmonitoring.com/water-monitoring-within-the-real-estate-sector/

Version 1
Published in April 2025

Sources

Statista. (2023). *Water stress projections worldwide.*
https://www.statista.com/chart/26140/water-stress-projections-global/

United Nations Convention to Combat Desertification. (2022). *Global Land Outlook 2: Summary for decision makers.*
https://www.unccd.int/sites/default/files/2022-04/GLO2_SDM_low-res_0.pdf

United Nations Development Programme. (2024). *Deep tech series vol. 4: Global water challenges.*
https://www.undp.org/policy-centre/singapore/blog/deep-tech-series-vol-4-global-water-challenges

United Nations Environment Programme. (2024). *Progress on implementation of Integrated Water Resources Management. Mid-term status of SDG indicator 6.5.1 and acceleration needs, with a special focus on climate change.*
https://www.unwater.org/sites/default/files/2024-08/SDG6_Indicator_Report_651_Progress-on-Implementation-of-IWRM_2024_EN_0.pdf

United States Environmental Protection Agency. (2025). *Effective water utility management practices*. Sustainable Water Infrastructure.
https://www.epa.gov/sustainable-water-infrastructure/effective-water-utility-management-practices

United Nations International Children's Emergency Fund. (2024). *Water and climate change: 10 things you should know.*
https://www.unicef.org/stories/water-and-climate-change-10-things-you-should-know

Version 1
Published in April 2025

Digital4Impact Tech Radar

About the our Digital4Impact Tech Radar Project

IMPACT LABS.earth
Nature Positive Business

The Need for Digital4Impact Tech Radar

In today's business environment, we are witnessing an increase in innovative technologies to tackle climate change mitigation and adaptation issues. There is a clear acceleration in the adoption of sustainability solutions by industry leaders, enabling the next wave of sustainable transformation. Understanding the available technologies given the current climate landscape allows businesses to define robust sustainability strategies, and to move away from Business-as-usual, accelerating to the next phase of sustainable company growth.

At IMPACT LABS, we believe that frugality and changes in our way of living and consuming are essential to build Nature Positive Businesses. We also believe that technology can be instrumental in increasing the potential of impact companies and in accelerating the transformation of traditional businesses.

The Aim of Digital4Impact Tech Radar

The **Digital4Impact Tech Radar** is the map to help you navigate the ever-evolving landscape of digital technologies that are driving sustainability. The **Digital4Impact Tech Radar** is curated by scanning the horizon to identify emerging technologies and their capabilities across all stages of the sustainability value chain. Our purpose is not to provide an oversimplification of complex systems, but to share our expertise obtained through our business transformation consulting experience. Our in-depth tailored insights empower your decision-making processes with accurate and relevant information. Having high-quality sustainability requirements is the first step to transgress Business-As-Usual, followed by choosing suitable methodologies and technologies that allow at-scale impact.

Understanding the Categories:

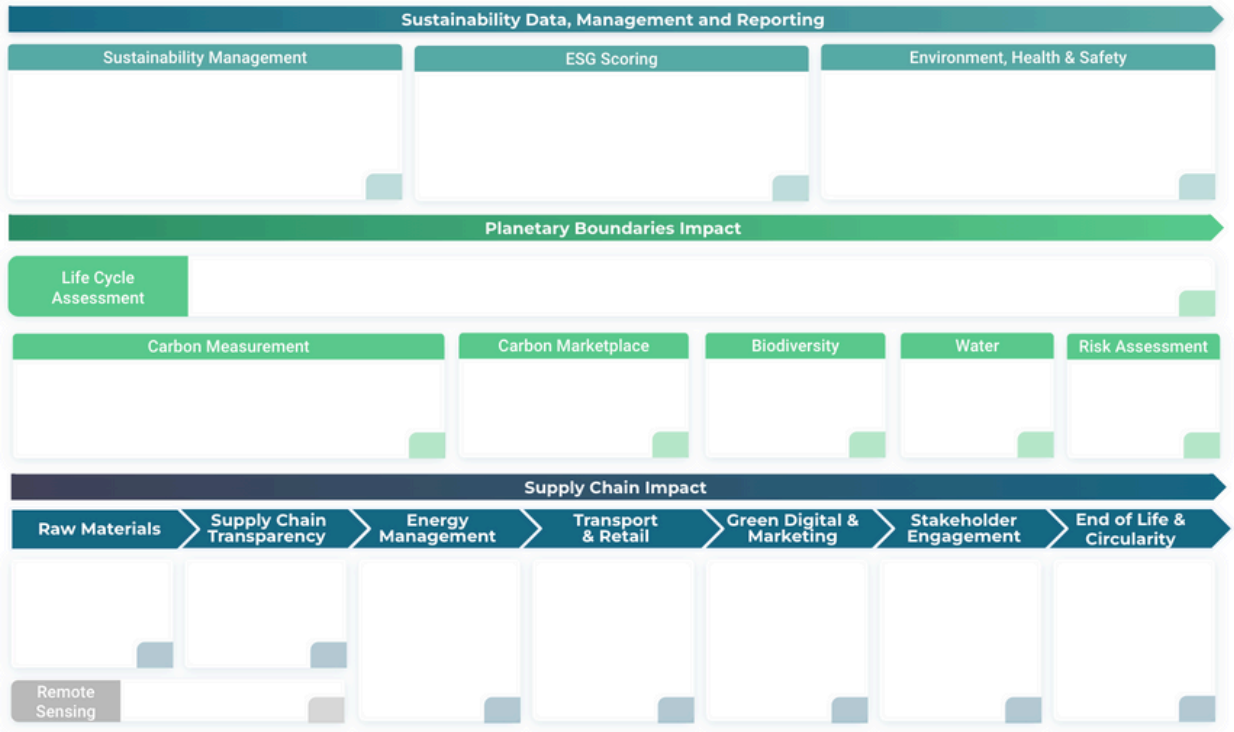
The **Digital4Impact Tech Radar** categorizes technologies based on three dimensions:

The sustainability transversal tools: Tools embracing multiple dimensions of ESG and sustainability. We can clearly see the evolution from the focus on health and safety to integrated sustainability measurement tools adapted to the latest reporting official requirements.

The planetary boundaries: Tools specialized in measuring and reducing impacts on one or several planetary boundaries. It is not to our surprise to see a large proportion of this category emphasizing on tackling the climate change boundary issues.

The company value chain: Tools that have been created to help companies reduce their impact at each stage of the value chain.

We believe this approach is crucial as sustainability is not a one-size-fits-all endeavor. By grouping technologies into categories, we help you understand how these solutions can enable sustainability transition throughout various stages of your business operations.



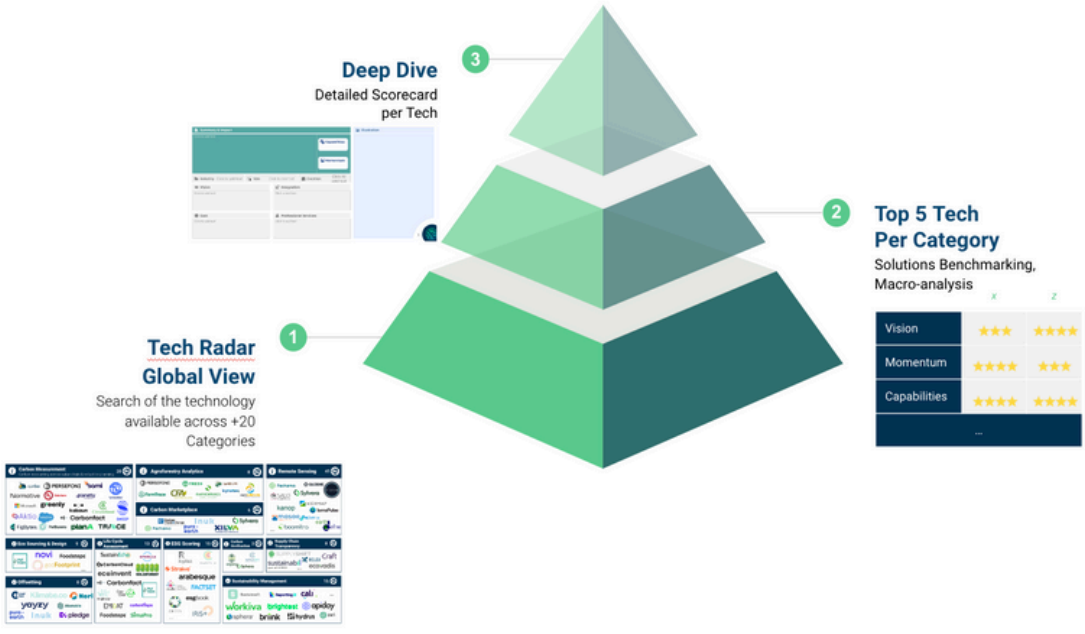
Methodology

Our methodology can be summarized into 3 key steps:

Scout – We continually scout the tech landscape for emerging solutions.
Analyze – We rigorously analyze these technologies, considering their sustainability impact and market viability.
Personalized Deep Dive – We provide you with detailed RFPs, enabling you to explore these solutions further.

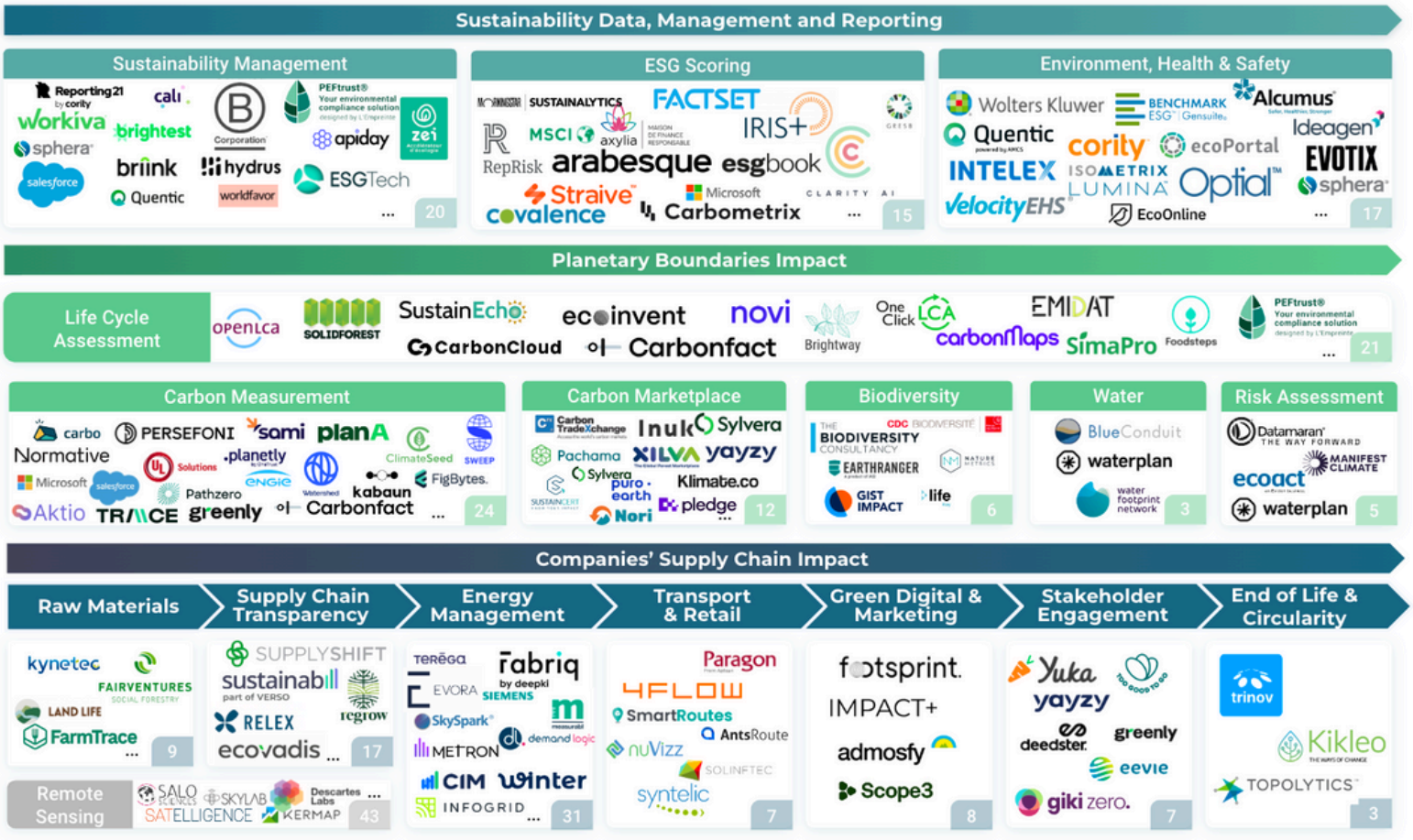
Our analysis has 3 levels, as represented in the image below:

Tech Radar Overview – Corresponding to the scouting step, it involves listing the company's key information, products and services, leading to an overview by category.
Top 5 Technologies per category – For each category, the top 5 companies are selected and in-depth analysis are performed, where their momentum and capabilities are scored.
Company Deep Dive – A detailed scorecard based on product demos.



Digital4Impact Tech Radar

The Tech Radar to accelerate your Ecological Transition



The Digital4Impact Tech Radar goes beyond merely identifying technologies; it helps you align these solutions with your specific company challenges. IMPACT LABS has deep industry knowledge on the features, capacity, and maturity of technology through the comprehensive analysis and research of the sustainability market. IMPACT LABS can provide you with a complete assessment of your company's actionable areas and conduct Requests for Proposals (RFPs) tailored to your sustainability needs.

Already published: check our website!

Here are the Deep dives that have already been released:

- Sustainability management
- Carbon Management
- Remote Sensing
- CSRD Tool
- Biodiversity (Beta)
- Circularity
- Water management

Next Releases

Deep dives on all different categories will be released in the near future, so stay tuned for:

- Supply Chain Transparency | To monitor and drive positive change with supplier
- Carbon Marketplace & Offsetting | Focus on climate change boundary, carbon credits trading platforms
- LCA, Eco-Sourcing and Design | Transversal to multiple planetary boundaries, those are Lifecycle assessment tech, including Eco-Sourcing/Design tools
- Green Digital & marketing | Tech to reduce the impact of your marketing tactics