Birdz Recognized as the

2021

Company of the Year

European Smart Water Metering
and Management Industry
Excellence in Best Practices

birdz
SMART **MEASURES** FOR SMART **COMMUNITIES**

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Background and Company Performance

Industry Challenges

Driven by a considerable increase in demand for a solution that enables water utilities to optimize resources, improve billing and cost recovery efficiency, and reinforce water conservation, Frost & Sullivan expects the smart water meter market revenue to grow at a compound annual growth rate of 18.5% to reach $4.6 billion by 2025.[1] As water utilities globally are under significant pressure to improve sustainability and resilience because of water stress and climate change, the optimization of water resources, improving customer service through billing accuracy, and reducing non-revenue water (NRW) have become key priorities. The urgent call for accountability has also led policymakers and regulators to revise current standards and develop frameworks to enhance existing infrastructure's environmental sustainability.

With billions of connected devices under the Internet of Things (IoT), various communications technologies enable easy accessibility to complex hybrid intelligence for water management solutions, thereby allowing cities to become smarter. Furthermore, online smart water sensors' key attributes include continual monitoring, advanced data transmission, remote/self-configuration and calibration, holistic system health monitoring, and diagnostics. These features help utilities, municipalities, and commercial customers detect and identify potential disruptions, perform predictive maintenance, and fine-tune the system on a real-time basis to enhance system optimization and efficiency. An analytics platform enables holistic asset management through critical parameters, such as NRW reduction, resource optimization, system efficiency, pipe condition monitoring, and demand management. These capabilities address important issues, for example, irregular water supply, financial stress, and changing customer demands that strain an industry historically designed to operate at a slower pace.

Even though data-based smart water solutions add an intelligent operations layer that helps the municipal water utility industry to optimize management and prioritize resources, the complex territory of technological innovation presents particular challenges:

- How do water utilities ensure their digital investments are future-ready and adaptable as capabilities improve?

- Considering the breadth and depth of information and infrastructure involved, can water utilities seamlessly integrate hardware and software products and solutions?

- How do water utilities share interconnectivity with other market partners to add value to society, building a sustainable business model that speaks to 21st-century realities?

In general, water utilities operate a range of infrastructure components and activities, investing in various products from many different partners to maximize the benefits and strengths of multiple products and manufacturers. Patched together, the technology

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[1] *Frost Radar in the Global Smart Water Meter Market* (Frost & Sullivan, June 2019)

deployed by numerous vendors form one functioning utility. The challenge concerning patchwork infrastructure means that a holistic integration of sensors and infrastructure data requires a single platform to generate, integrate, and analyze data stemming from non-aligned partners' technology.

Hence, water utilities need strong industry partners (with technical expertise and industry foresight) to deliver solutions that help them deal with current issues and leverage information communications technologies. Frost & Sullivan believes utilities, civic services, and governments need to work together, embracing smart water service solutions as a long-term proposition, to achieve industry goals. Within this context, forward-thinking companies providing an advanced architecture of solutions, strengthened by adeptness and agility in its modus operandi, will gain a competitive advantage and, ultimately, position themselves as market leaders.

Visionary Innovation & Performance and Customer Impact

Birdz, a subsidiary of the Veolia Group, specializes in the digitalization of environmental management, focusing specifically on smart city solutions (e.g., water, energy, and waste). This pioneer in intelligent water solutions and services currently has three million connected devices under operation and deployed several smart water networks across Europe. During the past two decades, Birdz evolved (discerningly aligned with its customers' water demand requirements) into an IoT virtual network operator, which supplements existing infrastructure with additional coverage. Operating as an integrator, Birdz uses the radio network architecture of telco's or private networks (e.g., LoRaWAN, NB-IoT, LTE-M) to deliver a sophisticated and comprehensive water management service that ranges from sensor development to monitoring, transmitting, and analyzing data. The company's digital solutions (e.g., billing support, leak detection, water quality and pressure control, potential fraud monitoring, subscriber consumption modeling, and forecasting leak detection) enable water system operators to optimize resource management and improve cost-efficiency to guarantee the best possible quality of service. Incorporating data from other meters and low-power networks, Birdz presents a holistic view with actionable insights on an accessible decision-making dashboard. This pragmatic approach, supporting high-quality data from the entire digital value chain with highly-skilled staff's IoT expertise, ensures that Birdz consistently delivers a splendid and seamless service.

Transforming Data into Useful Services and Operations with Public LoRaWAN

Birdz collaborates with various vendors (leveraging LoRA devices and the LoRaWAN protocol) to provide connectivity, visibility, and legitimacy at the point of data operation. Hence, Birdz embraces a collaborative approach (as opposed to a competitive vantage point) and partners with multiple meter manufacturers (in addition to its association with Veolia) to ensure that customers are not locked in when choosing a specific technology.

By combining different devices and technologies in its service offering, Birdz allows customers to adopt digital capabilities without replacing all the existing technical components. Such an accommodating approach and agile service empower municipalities to operate without the fear of jeopardizing future choices as the water management

landscape progresses. As such, Frost & Sullivan emphasizes the imperative for customers to replace labor-intensive manual water reading and reduce water utility consumption and waste to improve profitability margins in the longer term, driving sustainability. The business value is evident: wirelessly capturing usage data increases operational efficiency as failure points and leaks in piping networks are detected instantly. Also, the total water footprint is visible at a granular level.

Deployment in Lyon: Best Practices Use Case

In 2015, Birdz deployed one of the biggest smart water networks in Europe to serve more than 1.3 million customers of 54 municipalities in the metropole of Lyon, France. This remote water management solution included 396,000 metering points for residential and business utilization, water quality probes, and 5,500 noise correlator sensors in the city's 4,000 kilometer (km) piping infrastructure. Birdz's grid management platform correlated the incoming data from the LoRa-enabled water sensors across the LoRaWAN network to display key performance indicators (such as the volume of water supplied and consumed, apparent losses, grid output, linear loss index, and nighttime flow).

After deployment, the city saved up to one cubic meter of water annually and increased its water network efficiency from 77% to 85.2%. Due to the system's water balance improvement, the city saves an additional €300,000 annually as it is now compliant with the Water Agency's target. Because the sand and clay surrounding the city's piping network impede leak detection, it is difficult to hear the noise of water piping out. As the noise sensors accurately measure the sound of water flowing inside pipes, it is now easy to geo-locate leaks. As a result, 500 new pipe leaks were discovered and repaired, thereby dramatically improving Lyon metropole's financial performance. Reportedly, the city redeemed its investment within two and a half years.

On the back of Lyon's success, Birdz recently deployed 200,000 metering points using a LoRa-network in Toulouse, serving 756,000 supplied customers from 37 municipalities, to increase water management efficiency while driving down costs. The contract encompasses 3,340 km piping infrastructure and 56 reservoirs, covers an area of 466 km^2, and will continue for 12 years. Furthermore, Birdz partnered with Orange Business Services to roll out an open and interoperable water service that will meet the needs of 95% of the metropolitan population in France, including 30,000 municipalities. Reducing non-revenue water (through the quick detection of water leaks and fraud) and enhancing revenue collection are key objectives of Birdz's hybrid network approach, unifying all water sensors through multi-service connectivity capabilities. The LoRA-network and data management platform (provided by Orange Business Services) will allow Birdz to focus on its core business, i.e., creating relevant business indicators (from the collected raw data) to support and advance the digital transformation of water utilities and elevate the customer experience.

Blockchain-based Technology Enhances Accountability and Transparency

Securing any water distribution network is paramount to Birdz's success. Therefore, the company entered a partnership with Ledger, a global leader in security and infrastructure solutions for blockchain-based applications and connected devices, to embed a specialized

microchip (a certified EAL5+ Secure Element) and its unique secure operating system (BOLOS) directly into Birdz's water sensors. This technology will ensure the accuracy of all collected data by signing and encrypting the data before sending it to the cloud and registering it into the IOTA blockchain. By leveraging Ledger's technology through this partnership, Birdz reinforces the critical importance of accurate water quality data, helping cities detect any irregularities from natural or malicious forces.

Future Growth: From Sensors to Environmental Services

Currently, Birdz deploys thousands of water sensors in Europe, covering countries such as the United Kingdom, Italy, Bulgaria, Sweden, Denmark, and Iceland. Clients recently valued how Birdz's digital services helped them continue critical operations (e.g., water distribution and waste management) during the COVID-19 pandemic. Climate change exacerbates water scarcity in many countries worldwide, raising the necessity for solutions that help customers reduce consumption. With political directives shifting to prioritize cities' environmental footprint, Birdz becomes involved in other areas, for instance, the global smart building applications market (i.e., digital solutions that deliver energy savings and air quality control while improving occupants' comfort, safety, and security). Birdz's future growth strategy is based on its interoperable IoT platform (IoT Drive), skillfully designed around the environmental themes of water, waste, energy, and air quality. This software platform (with multi-sensor IoT and multi-network connectivity capabilities) delivers key functionalities, e.g., the fast deployment of new objects and simplified data export to third parties. With its service offering, Birdz aspires to contribute to the eco-responsible management of cities' environmental footprint, supporting the United Nations' sustainable development goals to enhance all citizens' lives.

Conclusion

Water system operators need to replace labor-intensive manual water reading and reduce water utility consumption and waste to improve profitability margins in the longer term, driving sustainability. Birdz's value proposition is evident. By wirelessly capturing usage data, the company increases operational efficiency as failure points and leaks in piping networks are detected instantly. With the total water footprint visible at a granular level, the company's digital solutions allow municipalities and utilities to optimize resource management and improve cost-efficiency to guarantee the best possible quality of service to all citizens. Moreover, Birdz's innovative environmental Internet of Things platform enables clients to collect data and control any sensor for different uses (such as water, waste, energy, or air quality) in a connected city, whatever the communication network. Ignited by its successful track record and dedicated staff, Birdz advances the digital transformation of water utilities and commercial clients to boost accountability, cost-efficiency, affordability, and customer experience through its service.

For its robust partnerships driving large-scale deployments and a pragmatic approach that delivers unmatched agility, Birdz is recognized with Frost & Sullivan's 2021 European Company of the Year Award in the smart water metering and management industry.

Significance of Company of the Year

To receive the Company of the Year Award (i.e., to be recognized as a leader not only in your industry, but among non-industry peers) requires a company to demonstrate excellence in growth, innovation, and leadership. This excellence typically translates into superior performance in three key areas—demand generation, brand development, and competitive positioning—that serve as the foundation of a company's future success and prepare it to deliver on the 2 factors that define the Company of the Year Award: Visionary Innovation and Performance, and Customer Impact).

- Acquire competitors' customers
- Increase renewal rates
- Increase upsell rates
- Build a reputation for value
- Increase market penetration

- Earn customer loyalty
- Foster strong corporate identity
- Improve brand recall
- Inspire customers
- Build a reputation for creativity

DEMAND

BRAND

Company of the Year

COMPETITIVE POSITIONING

- Stake out a unique market position
- Promise superior value to customers
- Implement strategy successfully
- Deliver on the promised value proposition
- Balance price and value

Understanding Company of the Year

Driving demand, brand strength, and competitive differentiation all play critical roles in delivering unique value to customers. This three-fold focus, however, must ideally be complemented by an equally rigorous focus on Visionary Innovation and Performance to enhance Customer Impact.

Key Benchmarking Criteria

For the Company of the Year Award, Frost & Sullivan analysts independently evaluated each factor according to the criteria identified below.

Visionary Innovation & Performance

Criterion 1: Addressing Unmet Needs
Requirement: Implementing a robust process to continuously unearth customers' unmet or under-served needs, and creating the products or solutions to address them effectively

Criterion 2: Visionary Scenarios through Mega Trends
Requirement: Incorporating long-range, macro-level scenarios into the innovation strategy, thereby enabling "first-to-market" growth opportunity solutions

Criterion 3: Implementation of Best Practices
Requirement: Best-in-class strategy implementation characterized by processes, tools, or activities that generate a consistent and repeatable level of success.

Criterion 4: Blue Ocean Strategy
Requirement: Strategic focus on creating a leadership position in a potentially "uncontested" market space, manifested by stiff barriers to entry for competitors

Criterion 5: Financial Performance
Requirement: Strong overall business performance in terms of revenues, revenue growth, operating margin, and other key financial metrics

Customer Impact

Criterion 1: Price/Performance Value
Requirement: Products or services offer the best value for the price, compared to similar offerings in the market.

Criterion 2: Customer Purchase Experience
Requirement: Customers feel they are buying the most optimal solution that addresses both their unique needs and their unique constraints.

Criterion 3: Customer Ownership Experience
Requirement: Customers are proud to own the company's product or service and have a positive experience throughout the life of the product or service.

Criterion 4: Customer Service Experience
Requirement: Customer service is accessible, fast, stress-free, and of high quality.

Criterion 5: Brand Equity
Requirement: Customers have a positive view of the brand and exhibit high brand loyalty.

Best Practices Recognition: 10 Steps to Researching, Identifying, and Recognizing Best Practices

Frost & Sullivan analysts follow a 10-step process to evaluate Award candidates and assess their fit with select best practice criteria. The reputation and integrity of the Awards are based on close adherence to this process.

STEP		OBJECTIVE	KEY ACTIVITIES	OUTPUT
1	**Monitor, target, and screen**	Identify Award recipient candidates from around the globe	• Conduct in-depth industry research • Identify emerging sectors • Scan multiple geographies	Pipeline of candidates who potentially meet all best-practice criteria
2	**Perform 360-degree research**	Perform comprehensive, 360-degree research on all candidates in the pipeline	• Interview thought leaders and industry practitioners • Assess candidates' fit with best-practice criteria • Rank all candidates	Matrix positioning of all candidates' performance relative to one another
3	**Invite thought leadership in best practices**	Perform in-depth examination of all candidates	• Confirm best-practice criteria • Examine eligibility of all candidates • Identify any information gaps	Detailed profiles of all ranked candidates
4	**Initiate research director review**	Conduct an unbiased evaluation of all candidate profiles	• Brainstorm ranking options • Invite multiple perspectives on candidates' performance • Update candidate profiles	Final prioritization of all eligible candidates and companion best-practice positioning paper
5	**Assemble panel of industry experts**	Present findings to an expert panel of industry thought leaders	• Share findings • Strengthen cases for candidate eligibility • Prioritize candidates	Refined list of prioritized Award candidates
6	**Conduct global industry review**	Build consensus on Award candidates' eligibility	• Hold global team meeting to review all candidates • Pressure-test fit with criteria • Confirm inclusion of all eligible candidates	Final list of eligible Award candidates, representing success stories worldwide
7	**Perform quality check**	Develop official Award consideration materials	• Perform final performance benchmarking activities • Write nominations • Perform quality review	High-quality, accurate, and creative presentation of nominees' successes
8	**Reconnect with panel of industry experts**	Finalize the selection of the best-practice Award recipient	• Review analysis with panel • Build consensus • Select winner	Decision on which company performs best against all best-practice criteria
9	**Communicate recognition**	Inform Award recipient of Award recognition	• Announce Award to the CEO • Inspire the organization for continued success • Celebrate the recipient's performance	Announcement of Award and plan for how recipient can use the Award to enhance the brand
10	**Take strategic action**	Upon licensing, company able to share Award news with stakeholders and customers	• Coordinate media outreach • Design a marketing plan • Assess Award's role in future strategic planning	Widespread awareness of recipient's Award status among investors, media personnel, and employees

The Intersection between 360-Degree Research and Best Practices Awards

Research Methodology

Frost & Sullivan's 360-degree research methodology represents the analytical rigor of our research process. It offers a 360-degree view of industry challenges, trends, and issues by integrating all 7 of Frost & Sullivan's research methodologies. Too often companies make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. The integration of these research disciplines into the 360-degree research methodology provides an evaluation platform for benchmarking industry participants and for identifying those performing at best-in-class levels.

360-DEGREE RESEARCH: SEEING ORDER IN THE CHAOS

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Frost & Sullivan, the Growth Partnership Company, enables clients to accelerate growth and achieve best-in-class positions in growth, innovation, and leadership. The company's Growth Partnership Service provides the CEO and the CEO's Growth Team with disciplined research and best practice models to drive the generation, evaluation, and implementation of powerful growth strategies. Frost & Sullivan leverages more than 50 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from 45 offices on six continents. To join our Growth Partnership, please visit http://www.frost.com.