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Smart Water Metering Transformation and Monetization Pathways

Market Evolution, Regional Outlook, and Growth Opportunities Across Ecosystem

FOCUS POINTS

1	SMART WATER METERING
2	6P FRAMEWORK
3	MARKET OVERVIEW
4	GROWTH OPPORTUNITIES & CALL TO ACTION
5	KEY TAKEAWAYS

SMART WATER METERING

Overview

Frost & Sullivan defines smart water metering as an integrated value chain spanning meters, connectivity, data management, and analytics.

Smart Water Meters (SWM)
- Measure consumption accurately
- Enable AMR or AMI data capture
- Mechanical or static options

Network Solutions (NS)
- Transmit meter data via LPWAN or RF
- Support AMI and AMR connectivity
- Enable reliable data backhaul

HES – MDM
- Collect and manage meter data
- Support asset, alert, and network management
- Enable data exchange via APIs

CIS Billing
- Convert meter data to bills
- Manage customer and usage records
- Support meter-to-cash workflows

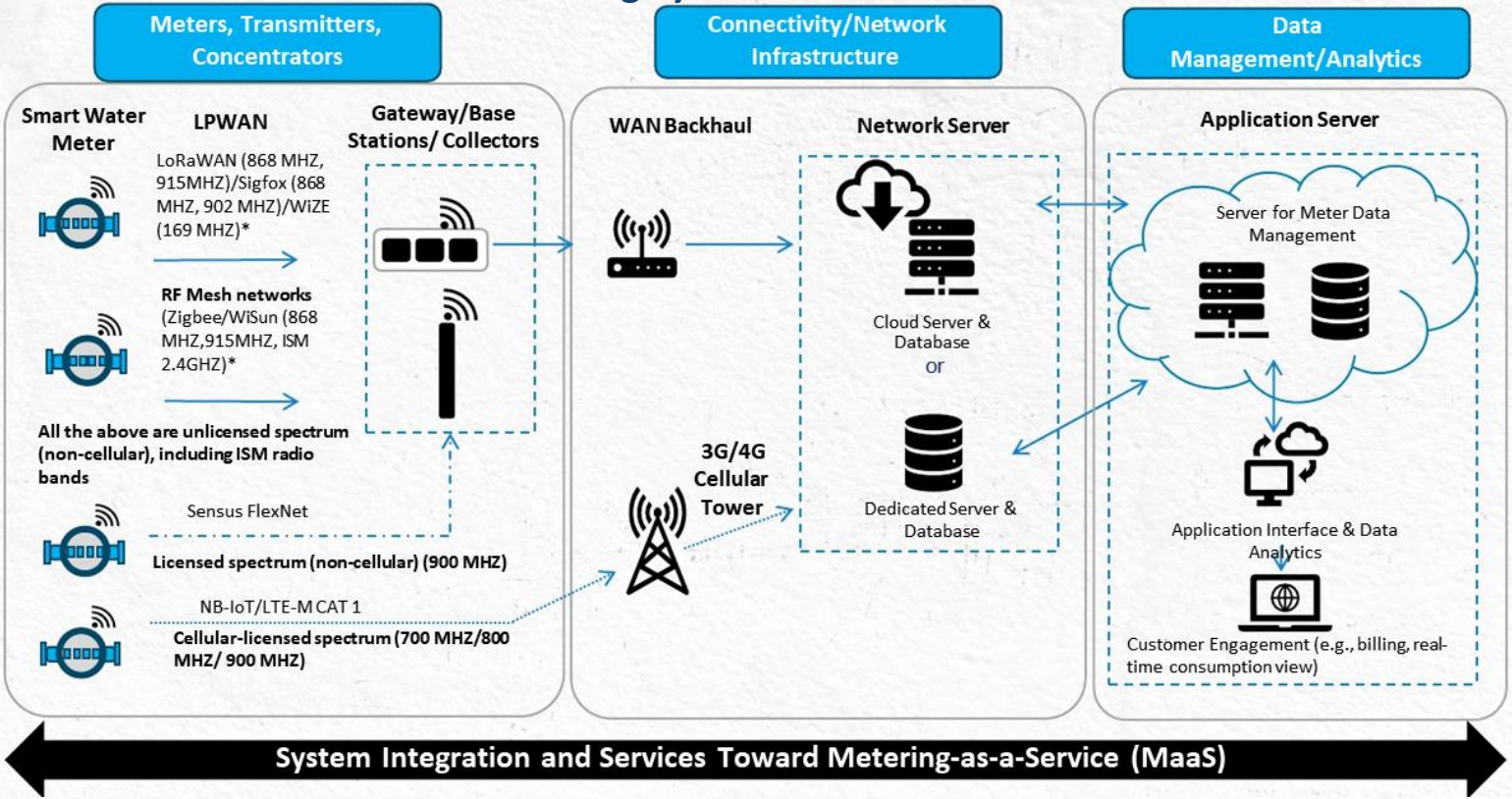
CEP & Data Analytics (CEP DA)
Visualize near real-time usage
Detect leaks and anomalies
Improve efficiency and engagement

Design, Engineering & Project Management (DE PM)
- Plan and execute deployments
- Manage vendors and rollout
- Support procurement and delivery

AMR – Automated meter reading; AMI – automated metering infrastructure; LPWAN – low power wide area network; RF – radio frequency; HES – head-end systems; MDM – meter data management; CIS – customer information system; API – application programming interface; CEP – customer engagement portal

SMART WATER METERING

Value Chain of an AMI Smart Water Metering System



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Source: Frost & Sullivan

SMART WATER METERING

Drivers and Challenges

DRIVERS

- Water scarcity, climate stress, and NRW reduction
- Policy mandates and government-led programs
- Billing accuracy and financial sustainability of utilities
- Digital transformation and availability of LPWAN

CHALLENGES

- High upfront CAPEX and budget constraints
- Operational and skills gaps within utilities
- Interoperability and legacy infrastructure issues
- Customer acceptance and tariff sensitivity

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Source: Frost & Sullivan

6P FRAMEWORK

For Future of ESG, Sustainability, and Circular Economy

PLATFORMS

Platforms for measuring, monitoring, reporting, and verifying ESG performance for compliance with international reporting guidelines.

PARTNERSHIPS

Partners in the structuring, implementation and achievement of sustainability and circular economy objectives through transfer and subsidies for technologies

PEOPLE

People and personas both internal (supply side) and external (demand side) including customers

POLICIES

UN sustainability development goals (SDGs); regional, national and local
ESG-focused policies—SEC1, CSRD2, green taxonomy, Paris climate agreement (net zero goals/targets), reporting initiatives (TCFD3 and GRI4 standards)

PRODUCTS

Product design and development that align with ESG targets and are influenced by ESG-related policies

PROCESSES

Mapping of key activities and workflows impacting/influencing the environment and emissions, with key focus on tracking scope 1, 2, and 3 emissions

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1 US Securities and Exchange Commission (SEC); 2 Corporate Sustainability Reporting Directive (CSRD); 3 Task Force on Climate-Related Financial Disclosures (TCFD); 4 Global Reporting Initiative (GRI)
Source: Frost & Sullivan

6P FRAMEWORK

How 6P Supports the Smart Water Metering Industry

Platforms

AI and IoT platforms for water data collection, monitoring, analytics, and reporting

Partnerships

Collaboration between utilities, technology providers, system integrators, and governments

People

Utility operators, city authorities, technology vendors, and end users

Policies

Water efficiency, NRW reduction, digital utility, and sustainability mandates

Products

Smart water meters, communication modules, and analytics-enabled software solutions

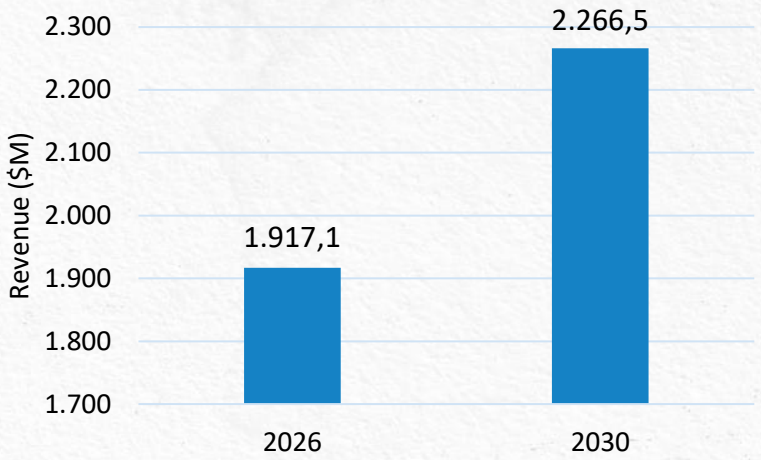
Processes

Meter-to-cash workflows, asset management, leak detection, and performance tracking

MARKET OVERVIEW

Europe—Revenue Outlook

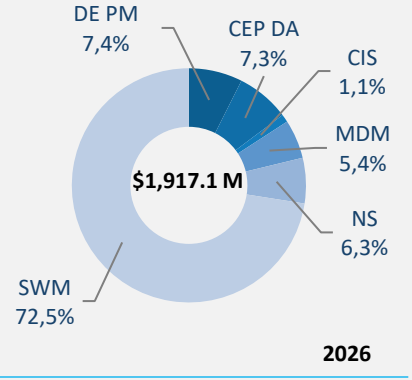
Smart Water Metering: Revenue and Unit Shipment Forecast, Europe, 2026 and 2030



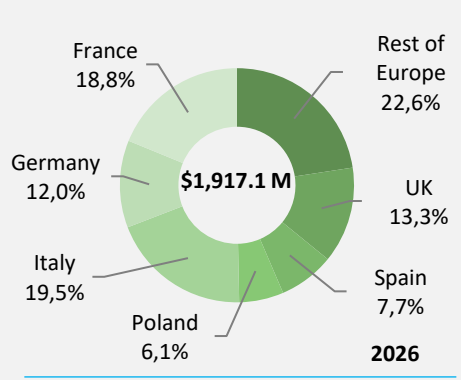
Unit Shipment 12.8 M (2026) ➔ 12.7 M (2030)

Note: A unit shipment (of smart water meter) represents a water meter fitted with a smart communication module, which could be an AMR- or an AMI-based module. Revenues are associated with smart water metering value chain segments.

Smart Water Metering: Revenue Breakdown by Segment, Europe, 2026 and 2030



Smart Water Metering: Revenue Breakdown by Country, Europe, 2026 and 2030



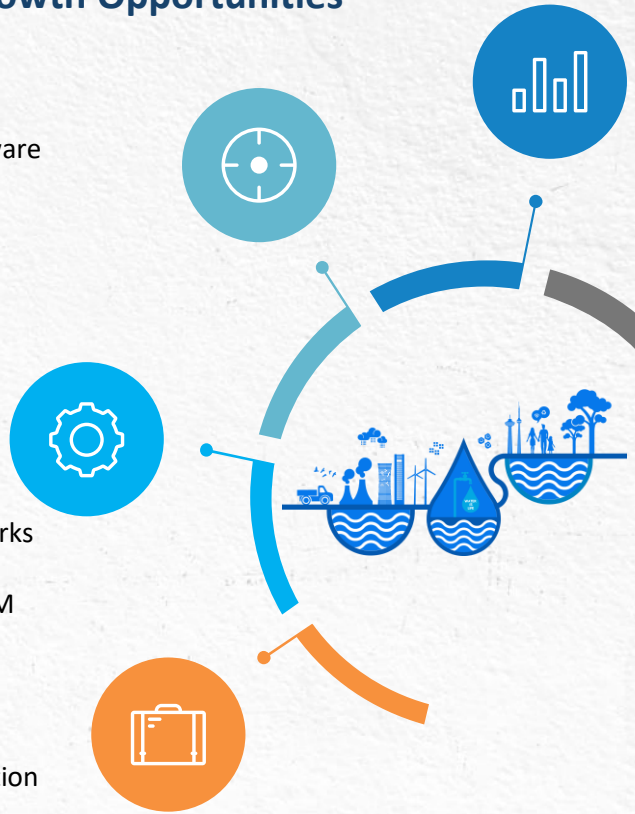
Segments are defined on Slide 3

Source: Frost & Sullivan

MARKET OVERVIEW

Europe—Market Dynamics and Growth Opportunities

- **Market Growth**
  - Steady AMI-led revenue expansion
  - Static meters driving value growth
  - Recurring revenue from networks and software
  - AMI adoption unlocking data services
- **Key Countries**
  - France and UK lead large-scale rollouts
  - Italy driven by loss reduction mandates
  - Spain supported by PERTE funding
  - Germany slower, policy urgency lower
  - Benelux and Nordics emerging hotspots
- **Technology Trends**
  - Static meters replacing mechanical
  - NB-IoT and LoRaWAN dominant LPWANs
  - Public LPWAN preferred over private networks
  - Rising demand for dual AMR-AMI capability
  - Growing adoption of universal HES and MDM
- **Growth Opportunities**
  - Network-as-a-Service business models
  - Dual AMR–AMI communication modules
  - Meter data analytics for NRW reduction
  - Customer engagement portals for conservation
  - Vendor-agnostic HES and MDM platforms



Key Companies to Watch

- Meter OEMs: Itron, Kamstrup, Maddalena
- Integrators / Operators: SUEZ
- Connectivity Providers: Vodafone, Orange

Europe Smart Water Metering

- High water stress driving conservation focus
- Strong regulatory push for digital water
- Mature meter OEM and solution ecosystem
- Rapid shift from AMR to AMI

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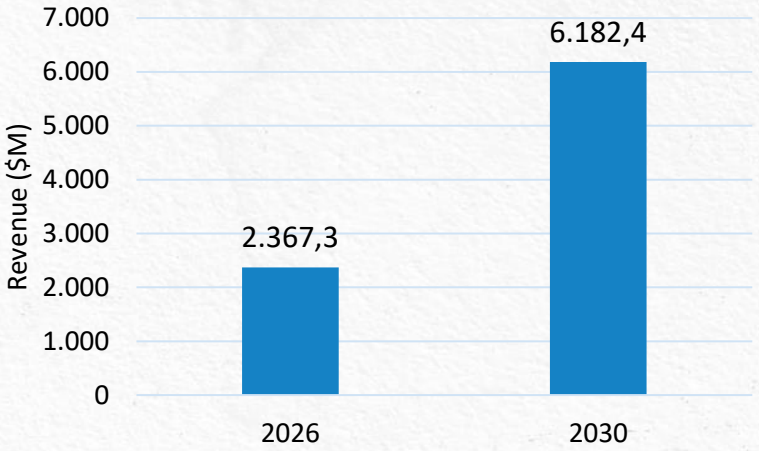
Source: Frost & Sullivan

MARKET OVERVIEW

Asia-Pacific (APAC)—Revenue Outlook

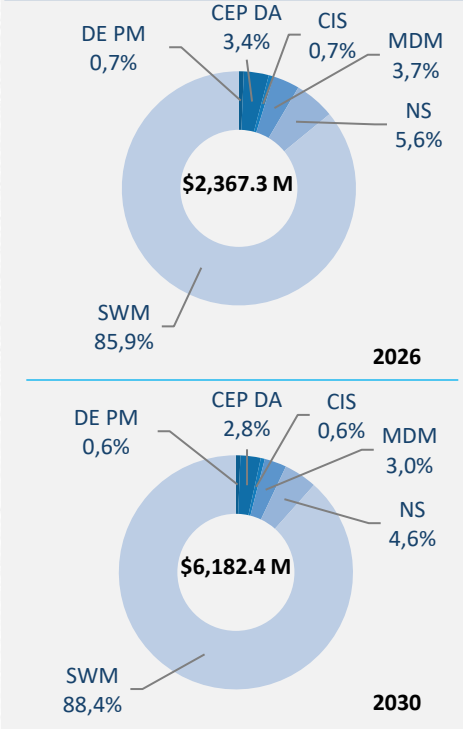
Smart Water Metering: Revenue and Unit Shipment Forecast, APAC, 2026 and 2030



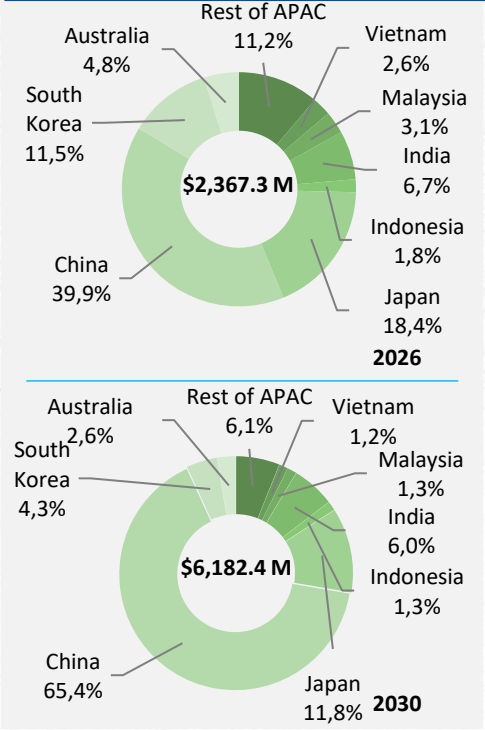
Unit Shipment	12.45M (2026)	➔	29.65 M (2030)

Note: A unit shipment (of smart water meter) represents a water meter fitted with a smart communication module, which could be an AMR- or an AMI-based module. Revenues are associated with smart water metering value chain segments.

Smart Water Metering: Revenue Breakdown by Segment, APAC, 2026 and 2030



Smart Water Metering: Revenue Breakdown by Country, APAC, 2026 and 2030



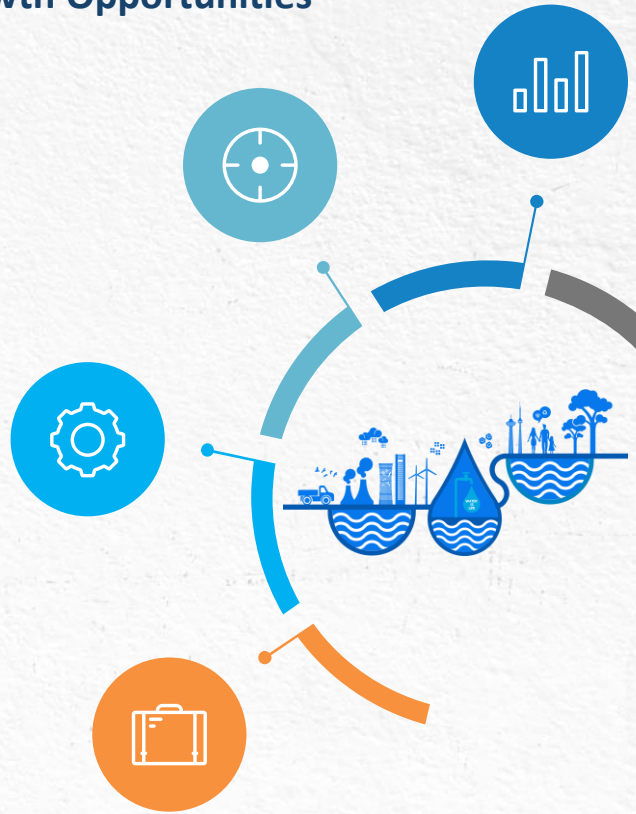
Segments are defined on Slide 3

Source: Frost & Sullivan

MARKET OVERVIEW

APAC—Market Dynamics and Growth Opportunities

- **Market Growth**
  - Fastest-growing global region
  - Large-scale national and city rollouts
  - Meter hardware dominates revenue today
  - Recurring revenue rising from AMI services
- **Key Countries**
  - China drives scale and volume
  - India leads policy-mandated rollouts
  - Japan driven by replacement cycles
  - Australia and NZ focus on conservation
  - Southeast Asia emerging on NRW reduction
- **Technology Trends**
  - Mechanical to static meter transition
  - AMI adoption accelerating across APAC
  - LoRaWAN and NB-IoT preferred LPWANs
  - Public networks favored over private
  - Growing focus on MDM and analytics
- **Growth Opportunities**
  - Static AMI meter deployments
  - Performance-based and DBFOT contracts
  - Network-as-a-Service adoption
  - Advanced analytics for NRW reduction
  - Integrated water network management



Key Companies to Watch

- Meter OEMs: Itron, George Kent
- Public-Sector Anchors / Utilities: K-Water
- Integrators / Solution Providers: SUEZ
- Connectivity Providers: Telekom Indonesia, Telekom Malaysia

APAC Smart Water Metering

- Highly fragmented, policy-driven market
- Mix of developed and emerging economies
- Strong government role in adoption
- Shift from mechanical to AMI underway

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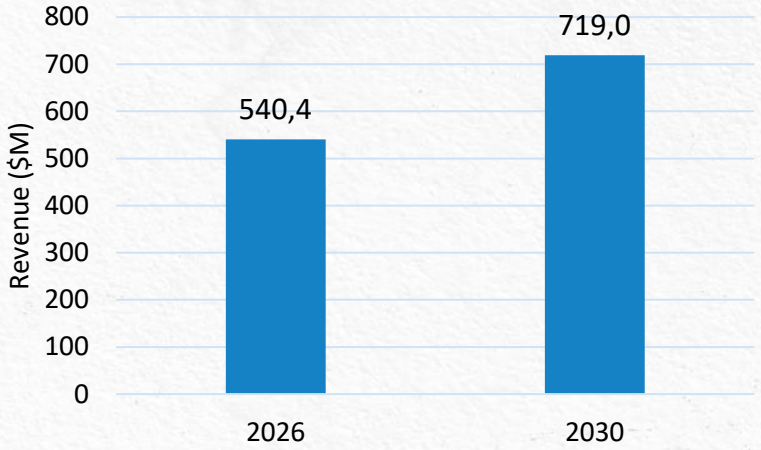
Source: Frost & Sullivan

MARKET OVERVIEW

Middle East and Africa (MEA)—Revenue Outlook

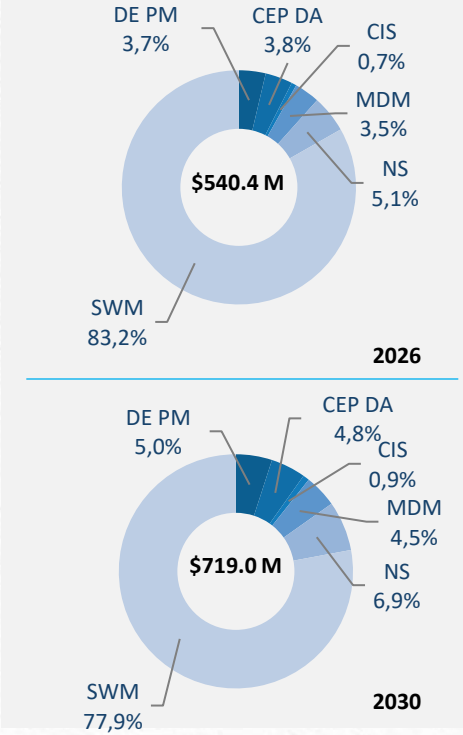
Smart Water Metering: Revenue and Unit Shipment Forecast, MEA, 2026 and 2030



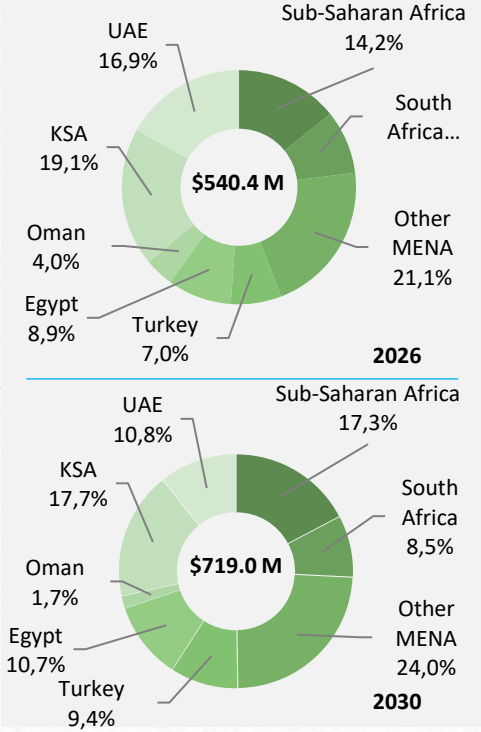
Unit Shipment 2.8 M (2026) ➔ 3.5 M (2030)

Note: A unit shipment (of smart water meter) represents a water meter fitted with a smart communication module, which could be an AMR- or an AMI-based module. Revenues are associated with smart water metering value chain segments.

Smart Water Metering: Revenue Breakdown by Segment, MEA, 2026 and 2030



Smart Water Metering: Revenue Breakdown by Country, MEA, 2026 and 2030



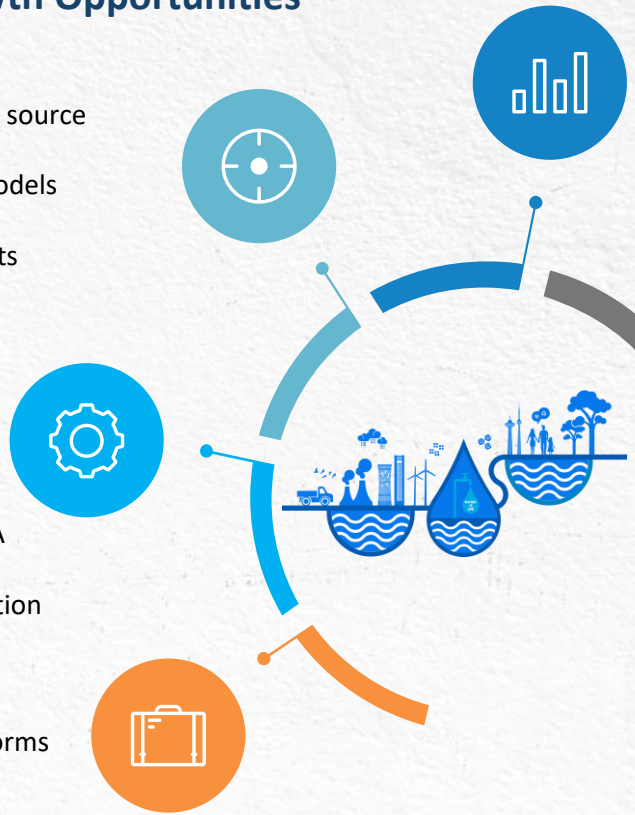
Segments are defined on Slide 3

Source: Frost & Sullivan

MARKET OVERVIEW

MEA—Market Dynamics and Growth Opportunities

- **Market Growth**
  - Steady growth driven by mandated rollouts
  - Meter hardware remains dominant revenue source
  - Faster uptake in GCC than SSA
  - Growing role of services and as-a-Service models
- **Key Countries**
  - Saudi Arabia and UAE lead large deployments
  - South Africa largest market in SSA
  - Egypt transitioning toward prepaid meters
  - Kenya, Ghana, Botswana emerging hotspots
  - Israel advanced AMI adoption
- **Technology Trends**
  - Strong demand for prepaid smart meters
  - Static meters favored in intermittent supply
  - AMI adoption increasing across GCC and SSA
  - LoRaWAN and NB-IoT most used LPWANs
  - Vendor-agnostic HES and MDM gaining traction
- **Growth Opportunities**
  - Prepaid static meters with valve control
  - Metering- and Billing-as-a-Service models
  - Universal HES and multi-vendor MDM platforms
  - Performance-based and BOT contracts
  - Analytics-led NRW reduction solutions



Key Companies to Watch

- Meter OEMs: Hangzhou Laison, Leeroy System, Diehl Metering, Kamstrup

MEA Smart Water Metering

- Severe water scarcity and drought risk
- High dependence on desalination and groundwater
- Strong focus on billing accuracy and loss reduction
- Uneven maturity across GCC, MENA, and Sub-Saharan Africa

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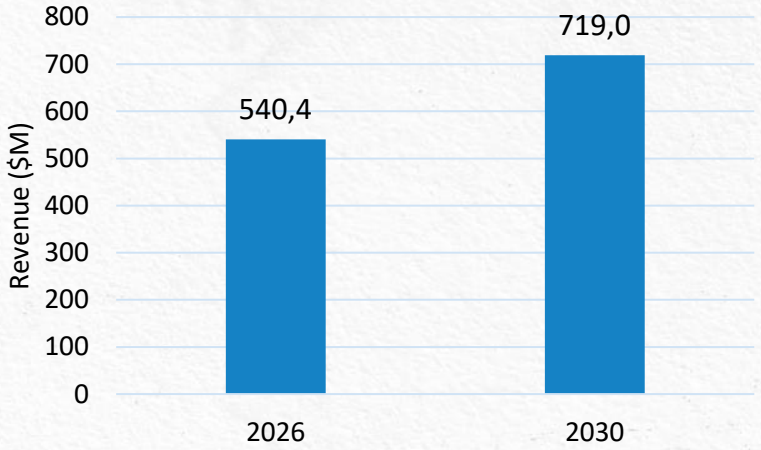
Source: Frost & Sullivan

MARKET OVERVIEW

United States (US)—Revenue Outlook

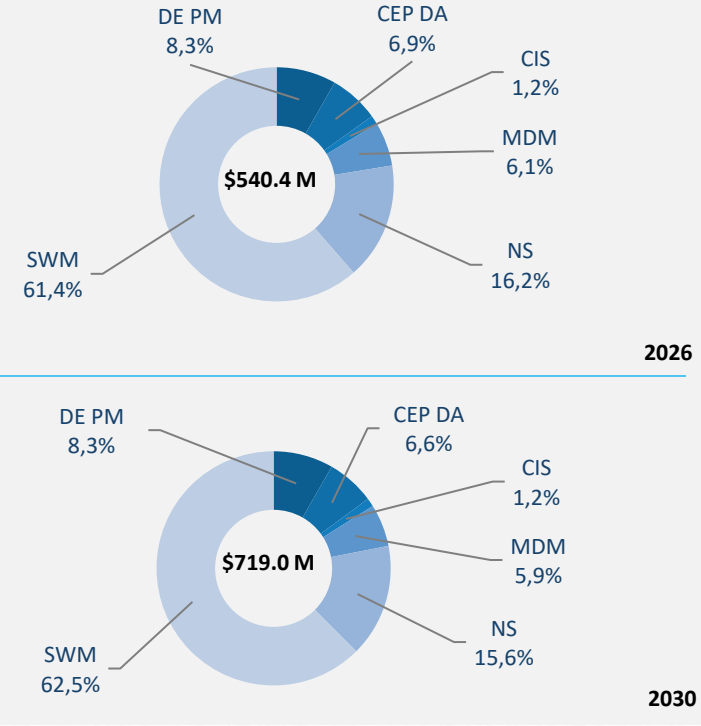
Smart Water Metering: Revenue and Unit Shipment Forecast, US, 2026 and 2030



Unit Shipment	6.02 M (2026)	➔	8.81 M (2030)

Note: A unit shipment (of smart water meter) represents a water meter fitted with a smart communication module, which could be an AMR- or an AMI-based module. Revenues are associated with smart water metering value chain segments.

Smart Water Metering: Revenue Breakdown by Segment, US, 2026 and 2030



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Source: Frost & Sullivan

MARKET OVERVIEW

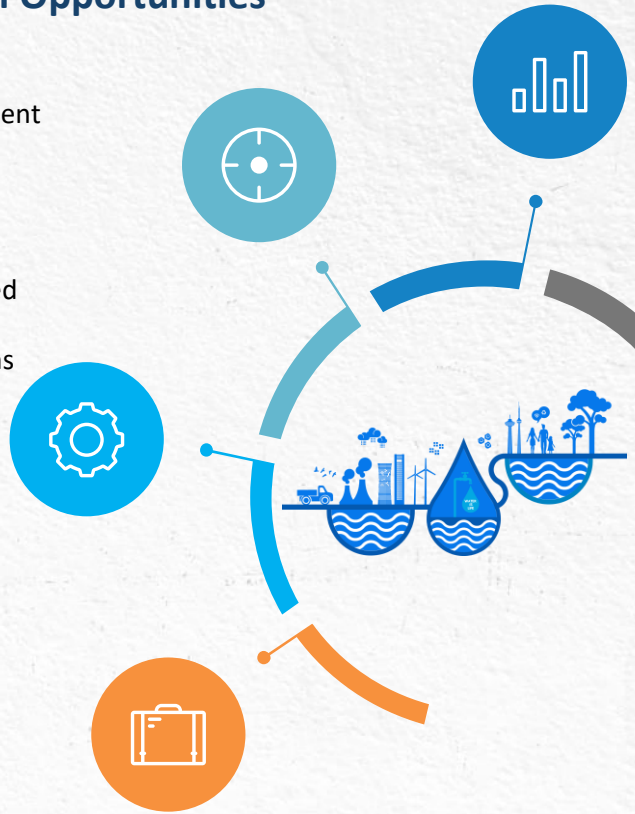
US—Market Dynamics and Growth Opportunities

Market Growth
- Steady, policy-supported growth
- Federal funding accelerates meter replacement
- Static meters driving value growth
- Software and services gaining share

Key Markets
- Large and mid-sized utilities lead adoption
- Western and drought-prone states prioritized
- Small utilities emerging via lite solutions
- Nationwide rollout through phased programs

Technology Trends
- AMI preferred over AMR
- Static meters becoming standard
- Shift to public LPWAN (LoRa, LTE-M)
- Network-as-a-Service adoption increasing
- CEP and advanced analytics gaining traction

Growth Opportunities
- AMI 2.0 upgrades and analytics
- Network-as-a-Service models
- Smart water lite for small utilities
- Universal HES and vendor-agnostic MDM
- Outcomes-based and MaaS contracts



Key Companies to Watch
- Meter OEMs: Badger Meter, Xylem-Sensus, Kamstrup, Itron, Mueller Water Products (MWP)
- Integrators / Engineering & Operators: Jacobs, Stantec
- Connectivity Providers: AT&T, Verizon
- Disruptive / Niche Solution Providers: Subeca

US Smart Water Metering
- Highly fragmented utility landscape
- Strong federal and state policy support
- AMI viewed as digital transformation entry point
- Shift from manual and AMR to AMI

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Source: Frost & Sullivan

GROWTH OPPORTUNITIES & CALL TO ACTION

Across regions, value is shifting from meter hardware to connectivity, data platforms, and outcome-based delivery models.

Prioritize AMI-ready static meters with LPWAN compatibility to capture large-scale replacement and greenfield rollout demand.

01 AMI-Based Smart Water Metering with Static Meters

02 Network-as-a-Service and Connectivity-Led Models

Partner with LPWAN providers to offer NaaS-based AMI solutions that remove network ownership and uptime risk for utilities.

Position MDM as the core platform for analytics-driven NRW reduction, supporting multi-vendor meters and multiple LPWANs.

03 Meter Data Management and Analytics for NRW Reduction

04 As-a-Service and Performance-Based Contracting Models

Develop flexible MaaS and performance-based offerings that bundle meters, networks, software, and O&M to overcome CAPEX and skills barriers.

FROST & SULLIVAN

Source: Frost & Sullivan

KEY TAKEAWAYS

1. **Smart Water Metering Is Platform-Driven:**
   Value is shifting from meters to connectivity, MDM, analytics, and AI across the meter-to-cash chain.

2. **AMI Rollouts Anchor Market Growth:**
   Large-scale AMI programs drive volume, replacement demand, and long-term service revenue globally..

3. **Revenue Mix Is Gradually Moving Upstream:**
   Hardware dominates today, while networks, software, and analytics deliver faster growth.

4. **Policy and NRW Reduction Drive Adoption:**
   Regulation, water stress, and loss reduction targets underpin demand across all regions.

5. **Outcome-Based Models Are Gaining Traction:**
   Utilities increasingly favor as-a-service and performance-linked delivery models.