Observations for a Better World
Weather Business Area


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Our Markets

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Weather Observation Solutions

Weather

- Meteorology
- Energy
- Transportation

Mega Trends

- Climate Change
- Digitalization and Big Data
- Renewable Energy
- Connected Devices
Weather Business Strategic Goals

- **Growth** through industry leading offering and information services expansion
- We have **strong expertise in applications, science and technologies**
- Customers view us as **the leader in reliability**

Weather Business Scope

**WEATHER BUSINESS**
Serving national MET agencies and weather impacted customers with comprehensive offering
Rich set of business and delivery models to match each customer’s need

**CUSTOMERS**
Meteorology, Aviation, Road & Rail, Maritime, Renewable Energy

**GEOGRAPHY**
Global delivery together with local partners
Reliable Weather Technology

Goals and Scope

Strategy

Conclusions
Global Leader Across the Offering

- Radiosonde
- Weather, Multiweather
- Visibility, Present weather
- Ceilometers
- Road/Air/Aviation, Weather stations
- Weather radars

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#1
#1-3

Truly Global Business and Presence

Countries where sold 2015
156 countries out of 196 in the World

Countries with own office or representation
117 countries out of 196 in the World
Continuous Innovation to Sustain Leadership Position

- Personnel in Research and Development: 300
- Of Vaisala personnel with University or Doctoral degree: 2/3
- Research and Technology Team involved in applied science: 30

Software Development Scale Significant

- Small scale embedded SW
- Large scale embedded SW
- Vaisala SW platforms
- Hosted software as a service

Mobile devices supported with the same software utilizing standard browsers or device specific apps utilizing partner network
Software Product Examples

IRIS Weather Radar Software
- Updates through releases
- Simple and easy-to-understand interface
- Accurate precipitation estimation and classification
- Earlier weather watches and warnings
- Track Storm Movement and Vertical Structure of Storms
- Access and share data from anywhere

Network Manager
- One secure platform to manage small and large observation networks with high-quality data 24/7
- Affordable and easy to buy and maintain over the product life cycle
- Efficiency through optimized central operations combining remote monitoring, control and diagnostics
- Possible to integrate also non-Vaisala instruments

Dependable Project Delivery

- Business Partner Providing Operational Value
- Information Services
- One Stop Shop Project House
- Installation and Integration
- Reliable Weather Technology Provider
- Hardware, Software & Basic Services
Aviation Total Weather Solution

Complete Meteorological Infrastructure

VAISALA Capacity Building Program for Public Weather Services of NHMS

WEATHER FORECAST PRODUCTION SYSTEM

WEATHER OBSERVATIONS Weather Radar

DATA COLLECTION, STORAGE AND QUALITY CHECK

WEATHER FORECAST PRODUCTION SYSTEM
Forecaster Workstations

Numerical Weather Prediction

Data Validity Checking Real-Time Observations Database

Climatological Database

Meteorological Products

DISSEMINATING
- FORECASTS
- EARLY WARNINGS
- WARNINGS
- ALERTS

TO SECTORS/USERS e.g.
- energy production
- agriculture
- transportation (air, sea, land)
- building & construction
- forestry
- fishing
- tourism & recreation
- health care
Cutting-edge Information Services

Weather Impacts Society, Business and People

Climate change implies
- More frequent and severe extreme weather
- Increased volatility in weather
Weather impacts business and behavior
- “70% of global activities are weather dependent”
- “50% of global businesses are weather sensitive”
- “30% of global GDP is weather impacted”
- “2nd biggest influence on consumer behavior after the state of economy”
Need for accurate weather data is increasing
- More innovative services will emerge

Note: Statements have not verified for accuracy – used as indicative only
Dynamic Traffic Signal in Colorado

Issue
- Accumulation of snow in a blind curve
- Snow would melt during the day and refreeze later in the day
- Customer noticed crashes were occurring at this curve during otherwise good driving conditions

Solution
- Use a non-intrusive fixed weather station to monitor grip.
- When refreeze occurred, weather station would activate warning sign located prior to the curve

Result
- 80% reduction in crashes at the site

Observation Enhanced Decision Support

- CheckTime for airlines to calculate aircraft anti-icing fluid failure
- AviCast run as software as a service for airport operations and maintenance
  - Real-time thunderstorm and lightning combined with weather radar image
  - Integrated for a convenient use at airport control towers with AviMet

- Road DSS product family for winter road maintenance decision makers
  - De-icing [reactive] and anti-icing [proactive] treatments
  - Improve operational efficiency and reduce environmental impact
  - Audit trail for treatment and performance reporting
Observation Enhanced Decision Support

- Pre-assessments supported by decade long global wind data and solar maps
- Investment due diligence services including measurement campaigns
- Short-term forecasts based on numerical weather models and learning systems

- Over 90% of the world’s national weather services with lightning detection networks use Vaisala technology, to support protecting life and property
- 8 of the world’s top 10 electric utility companies rely on lightning data from Vaisala manufactured lightning detection networks

Our System Vision

Customer

Internet

WEA std APIs

Private and/or public cloud

Energy Assessment & Forecasting

Weather Impact Analytics & Observation Enhanced Forecasts

Observations

Forecasts

Mobile, free and open data

Remote monitoring “anywhere”

Internet ecosystem, 3rd parties e.g. SmartMet

New xCasts

Long term data storage

New xCasts

Private and/or public cloud

AviCast

CheckTime

RoadDSS

TSMgr

NM

IoT compatible NG sensors

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# Goals and Scope

**Strategy**

Capital Markets Day 2016

## Global Market Sizes and Growth 2016

<table>
<thead>
<tr>
<th>in MEUR</th>
<th>Meteorology</th>
<th>Infrastructure</th>
<th>Transportation</th>
<th>Energy</th>
<th>Market share indication:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market size*</td>
<td>450-500</td>
<td>300</td>
<td>300-350</td>
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<tr>
<td>Market growth p.a.</td>
<td>0%</td>
<td>0-5%</td>
<td>&gt;10%</td>
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<tr>
<td>Vaisala market share 2016*</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market size total</td>
<td>1,000 – 1,200 MEUR, ~20% market share</td>
<td></td>
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</tr>
</tbody>
</table>

* Vaisala estimate of the size of market that is addressable currently or with organic development in the roadmaps

- No major changes to market overviews or growth rates
- Market sizes updated based on the growth rates
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