



TycheTools for Energy Efficient Buildings

TycheTools is the first AI-driven, SaaS predictive analytics platform for energy efficient buildings. Our award-winning solutions work out-of-the-box to significantly reduce energy consumption through real-time visibility, operational analytics and AI driven predictive and prescriptive alerts. We make possible data driven building management.

With TycheTools, owners of large buildings, particularly those dedicated to commercial and industrial uses, can solve critical pain points that current market solutions fail to address adequately.

Pain Point 1

Growing demand for air conditioning is one of the most critical blind spots in today's energy debate. Air conditioning and electric fans already account for about a fifth of total electricity in buildings around the world (about 10% of total global electricity consumption).

Without action to address energy efficiency, energy demand for space cooling will more than triple by 2050 – consuming as much electricity as all of China and India today.

- A TycheTools deployment is one of the easiest steps **building owners** and regulatory authorities can take to **reduce costs, cut emissions and slow demand for new power plants**.

Pain Point 2

You can't optimize what you can't measure. Most sensors on the market today are not fit for purpose for critical infrastructure environments:

- Outdated SNMP or Modbus protocols mean that data may be insecure.
- Limited sensor precision restricts line-of-sight regarding the data points needed to deliver on environmental comfort standards, anticipate problems and optimize operations.
- Limited scalability prevents them from being used for large commercial or industrial buildings, which are also those that need a higher density of the sensor network because their thermal behaviour is complex and difficult to model.
- High prices and difficult installation processes limit ROI.

Tychetools sensors are proper eyes purpose-built for **building monitoring**:

- Unmatched **accuracy with no extra calibration**.
- **Ultra-easy network provisioning and deployment** of thousands of sensors with a single Gateway.
- A sensor **network** that delivers peace of mind: **secure, reliable** even in the worst-case scenario and with no single point of failure.
- **Ultra-low power consumption** enabling uninterrupted operation for more the 3 years with a button battery.
- Much **better value** at a much **better price**.

Pain Point 3

Automatic discovery of energy saving opportunities, particularly those requiring only small investments, is critical to maintaining operational profitability while complying with new regulations related to the European Green Deal to achieve climate neutrality by 2050.

- Legacy buildings can greatly benefit from TycheTools' ability to model the normal behaviour of the building and to **detect anomalies automatically**.
- TycheTools can even generate **fully automated technical reports** highlighting the most interesting actions at any given time in accordance with the IPMVP methodology.

Pain Point 4

Building owners need to protect their data against emerging threats.

- TycheTools delivers a **higher standard of security** that avoids single points of failure, an essential value proposition for owner-operators of large commercial and industrial facilities.
- Our **wireless sensors use mesh networking** to ensure fault-tolerance.
- **Network security, application security, and device security** are addressed independently. Different applications use different cryptographic keys to minimize information access rights.

Pain Point 5

Building owners need to be efficient in order to meet current sustainability challenges. Operating teams must be data-driven to deliver on operational KPIs.

TycheTools' AI-driven, data-rich models allow building operators to:

- Adjust cooling setpoints to **minimise total energy consumption** during low-occupation periods via predictive models of occupancy and power consumption.
- Identify **infrastructure improvements** based on resource utilisation under the actual occupancy profile.
- **Pinpoint anomalies with no user configuration**, thereby ensuring that abnormal workloads, misconfigurations, attacks or hardware failures are discovered before they impact service delivery.

How we do it

SECURE SMART SENSOR NETWORK – enables monitoring, collection and local analysis of an unprecedented variety of data about the building activity (cooling, heating, ventilation, power, etc.).

PRESCRIPTIVE AND PREDICTIVE ALERTS – enhance operational optimization and reduce risks with AI-driven alerts based on customized behaviour modelling for each building area and subsystem.

INTUITIVE DASHBOARD – provides operators with real-time insights into the most critical drivers of operational efficiency (anomalies, key decisions, etc.).

