

Overview

2022



Digital Transformation

Digital transformation is "the process of using digital technologies to create new or modify existing - business processes, culture and customer experiences to meet changing business and market requirements."

What started many years ago as an AI university project is today one of the most innovative solutions in the operations and management of your indoor spaces. TycheTools can accelerate your journey towards the ultimate goal of digital transformation: automating the operations of your mission-critical infrastructures.



The Environment

Indoor environments are generally invisible. You can feel hot or cold, but unless you have a thermometer nearby you cannot define the temperature. Invisibility is synonymous with danger when it comes to the critical aspects of mission-critical operations in indoor environments - those that affect your comfort, your health, or the ability of your IT operations to ensure organisational continuity.

Mission critical operations require multiple data points in real time: temperature by itself is an important parameter, but without humidity measurement it cannot fully explain why you may be uncomfortable or if there is a risk to your health.



Based on Data

That's why TycheTools collects, analyses, and synthesises multi-dimensional data at whatever scale you need. Whether your environment is limited to a few hundred square metres, or your organisation spans four continents, we provide the information you need, securely, easily, and effectively to achieve both fault-free continuous operation and efficient resource utilisation.



Visibility

Our correlated data allows you to "see" your environment and extract data relating to your operations, both historically and in real time. This approach provides crucial information on the status of the different "elements" of your mission critical operations. For example, the CO2 levels in a room will change depending on the number of people entering and leaving and the nature and settings of the ventilation system. With visibility comes the ability to determine how these elements relate to each other; this knowledge provides the ability to make decisions.



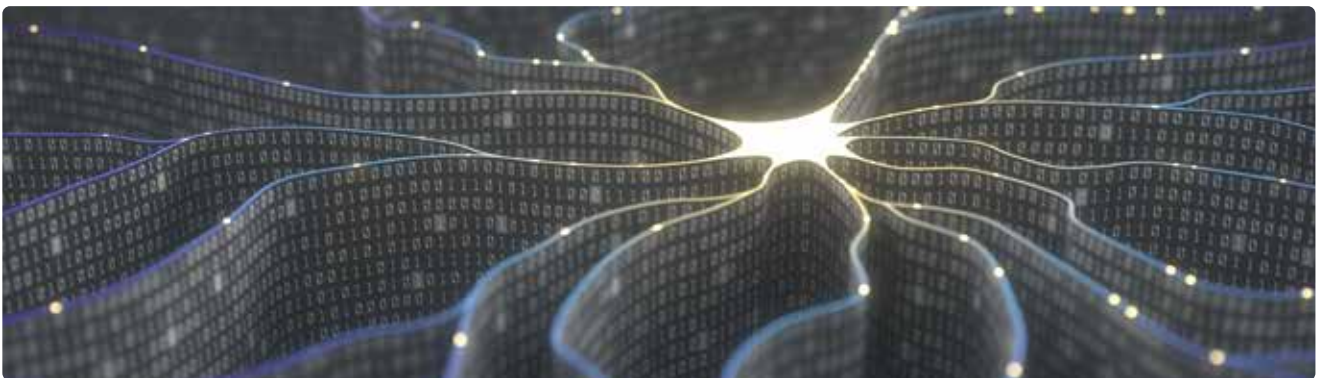
Focus

At TycheTools we know that different environments require different measurements. The data needed for visibility related to COVID-19 is different from the data needed for a mission-critical IT technical room. Therefore, we focus each solution on the data that matters most to your needs, while leveraging the same state-of-the-art architecture and AI tools. We currently work in two different areas: **ECOaaS for mission-critical technical rooms** and **AQaaS for indoor air quality**.



Artificial Intelligence

Both public indoor spaces and technical rooms are governed by internationally adopted standards. These standards describe the "playing field", i.e., the boundaries and rules for how a particular space should be constructed. For example, the World Health Organisation began defining indoor air quality in 1984. Meeting these standards is mandatory, but it is not enough. The standards tell us nothing about the "normal" functioning of a mission-critical operation in an indoor space. Continuous change in operations requires actions that are not only related to formal limits. For example, a piece of computer equipment can increase in temperature without exceeding the standard. If an alarm only informs us when standards are exceeded, it will remain silent. But this deviation from "normal" operation may indicate a malfunction that requires immediate intervention.



That's why TycheTools AI-based solutions establish models of "normal" operation rather than simply ensuring compliance with regulatory standards. These models are constantly updated using extensive real-time data, ensuring that the models fully reflect changes introduced during the lifecycle of the infrastructure. A change affecting the energy needs of IT equipment, and therefore the heat it generates, is quickly incorporated into the "normal" operational model, allowing subsequent actions and decisions to take these changes into account automatically.



Operation & Management

With TycheTools, organisations can transform their operations with management decisions based on real-time, historical, and deeply correlated data. TycheTools' solutions read operations continuously, and powered by AI, provide insights that transform the operations, efficiency, and management of your mission-critical operations.



Automatization

Automation is the ultimate goal of digital transformation for mission-critical infrastructures. The optimal operation of a complex system involving megawatts of power within a technical room or hundreds of people breathing in a single indoor space cannot be achieved manually. **The changes required by a climate control system to maintain ventilation, temperature, and air maintain the most efficient ventilation, temperature, and humidity in a continuously changing indoor space must be automatic.** Our solutions are an autopilot for your mission critical operations. Like the autopilot of a modern aircraft, our solutions can handle almost every aspect of the operation. And just like the autopilot of an aeroplane, our solutions know what they can't do, and know how to signal human operators when their intervention is necessary. TycheTools allows operations managers to focus their attention where it matters most.



ECOaaS

Our ECOaaS solution is a transformative operations and management system for mission-critical technical room environments. In today's world, IT is the foundation of any operation in any organisation. If IT fails, there are ripple effects throughout the organisation. If IT fails drastically, the entire organisation grinds to a halt. TycheTools solutions ensure that your operational environment is fully visible; our AI algorithms transform this data into actionable information to help you achieve maximum operational efficiency while minimising the risk of failure. Simply put, TycheTools ECOaaS provides the data and information so you can make better decisions.



AQaaS

Our AQaaS solution is an indoor air quality operation and management solution. Although it is built on the same platform as ECOaaS, it focuses on people.

We created AQaaS for one simple reason: the COVID-19 pandemic. On 30 April 2021, the WHO finally recognised what environmental experts had maintained from the beginning of the pandemic: indoor aerosols are the main transmission mechanism of the pandemic and ventilation is the key to indoor safety.

Although direct detection of the virus is not commercially viable, CO₂ concentration is considered the best indirect indicator of the possible presence of the virus. However, CO₂ measurement alone is not enough: what matters is correlated data and the variation of CO₂ over time. AQaaS provides the data that building managers need to protect public safety, in any space, at any time.

Growing awareness of the connection between CO₂ levels and pandemic risk has also drawn attention to the harmful effects of high CO₂ levels on human cognitive functions. Rigorous studies have shown time and again that this decline dramatically as CO₂ levels rise. Fortunately, these functions can be protected through the same actions that protect us from exposure to the virus: increased control of ventilation and, when necessary, closing off the interior space.

AQaaS provides this control.



How can we help you?

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