

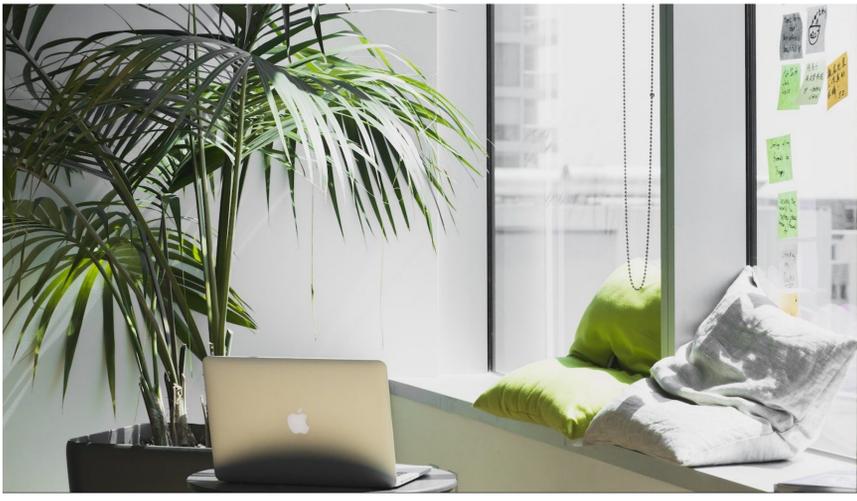


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# Smart Plants for a Healthy and Sustainable Working Environment

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Oxygen at Work

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The Swiss startup Oxygen at Work rents out visually attractive plant concepts consisting of high-performing plants and sensor technology to improve the indoor air quality in offices. By monitoring the air quality improvements in real-time, customers can not only profit from fewer sick leaves and more productive employees but also save energy costs due to the reduced run time of ventilation systems.

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Air quality and energy efficiency have not always gone hand-in-hand. In recent years, incentives to improve energy efficiency have facilitated the development of thermally insulated buildings, which require less energy for heating, ventilation and air conditioning (HVAC) systems. However, the concentration of air pollutants can build dangerous levels in such modern airtight constructions, posing a serious threat to human health. On the other hand, the emerging increased level of air pollution and the increased awareness of health issues caused by polluted air, have shifted the focus of the HVAC industry on improving indoor air quality performance, with no significant energy efficiency advances. Thus, their application is often limited by high costs associated with their frequent maintenance and significant energy consumption.

## Nature's capability to improve indoor air quality

Natural plants have, among others, two biological characteristics, which are theoretically promising for the indoor environment: Firstly, plants can clean the air by absorbing almost any airborne pollutants, while producing oxygen. Secondly, plants can evaporate humidity into the air which helps to increase the relative humidity. Although pioneer studies (NASA, UTS) have successfully demonstrated these characteristics, the effect of plants has only been poorly examined inside buildings and the related improvements of indoor air quality were barely tangible so far.

"Indoor plants are typically selected on the basis of their aesthetic features rather than physiological requirements reflecting their capacity to remove air pollutants" (Cell Press Reviews).

## The exploitation of the plant's potential with sensor technology

With "Environment as a Service," Oxygen at Work addresses the uncertainty regarding the effect of natural plants by complementing its plant concepts with sensor technology. In order to achieve the best possible results of air improvements, the startup ensures that only scientifically proven, high-performing plants are rented out that absorb many pollutants from the air and release humidity. To visualize the improvements, Oxygen at Work established a live dashboard. This allows customers to track the development of nine different air quality values required for a healthy working environment. In addition to that, the customers receive an aggregated overview of how much energy and CO2 has been saved, which can for example be used for the company's annual report.

Whereas the initial business idea and plant concepts were based on scientific studies (from NASA, amongst others), Oxygen at Work has in the meantime built its own foundation. "Today we mainly work with our own data from the real world," explains the CEO Manuel Winter, adding "We have air sensors in every room we locate our plants and we also use a range of metadata, including room characteristics, weather data, the location of the property, the number and type of devices in the room and many more – depending on the situation."

Based on this person-independent data, Oxygen at Work developed an algorithm that automatically generates suggestions for improvements. Due to that, offices can further be optimized through HVAC-adaptations that lead to energy savings, for example. "With one customer we were able to save 42 percent of the ventilation energy and another customer reported a reduction of even 84 percent. This also led to several tons of CO2 saved per year," Winter comments.

## The Bottom Line

An evaluation of customer data indicated, that sick leaves could be reduced by around 60 percent due to improved air quality and energy costs could be cut down by around 40 percent thanks to shorter ventilation run time. Besides these benefits which are directly relatable to the data analytics, a survey has shown that 77 percent of the employees felt more productive due to additional oxygen and 84 percent of the employees experienced an improvement of the workplace ambiance. The latter became extremely important in times of a shortage of skilled workers and competition from Google and other competitors. According to Winter, this is a decisive factor in job searches, especially for millennials.

Currently, Oxygen at Work's customers already includes large companies such as Lindt & Sprüngli, JLL, Ricola and IWG as well as Startups such as Locatee, Starmind, Avrios, Teralytics and many more.



Are you curious about how much energy and CO2 emission you can offset by bringing smart plants into your office space? In the [demo calculator](#) from Oxygen at Work, you can get an estimate of the individual potential for your office buildings.

For more information about the service, you can visit the [website](#) or contact Oxygen at Work directly for a free consultation via [hello@oxygenatwork.org](mailto:hello@oxygenatwork.org).

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### About the author



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## Oxygen at Work

We at Oxygen at Work help organizations improve the air quality in office spaces with special plants. We base our work on the latest scientific discoveries and a machine learning algorithm. With the right amount of suitable plants, we raise the oxygen concentration, reduce carbon dioxide concentration and other volatile organic compounds, and ensure an optimal atmospheric humidity in the office spaces of our customers. This leads to healthier and more productive employees, reduced sick leave, higher wellbeing and reduced carbon footprint.

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