aranet

BUSINESS CASE

CO_2 AND PRODUCTIVITY LOSS IN WORKPLACE

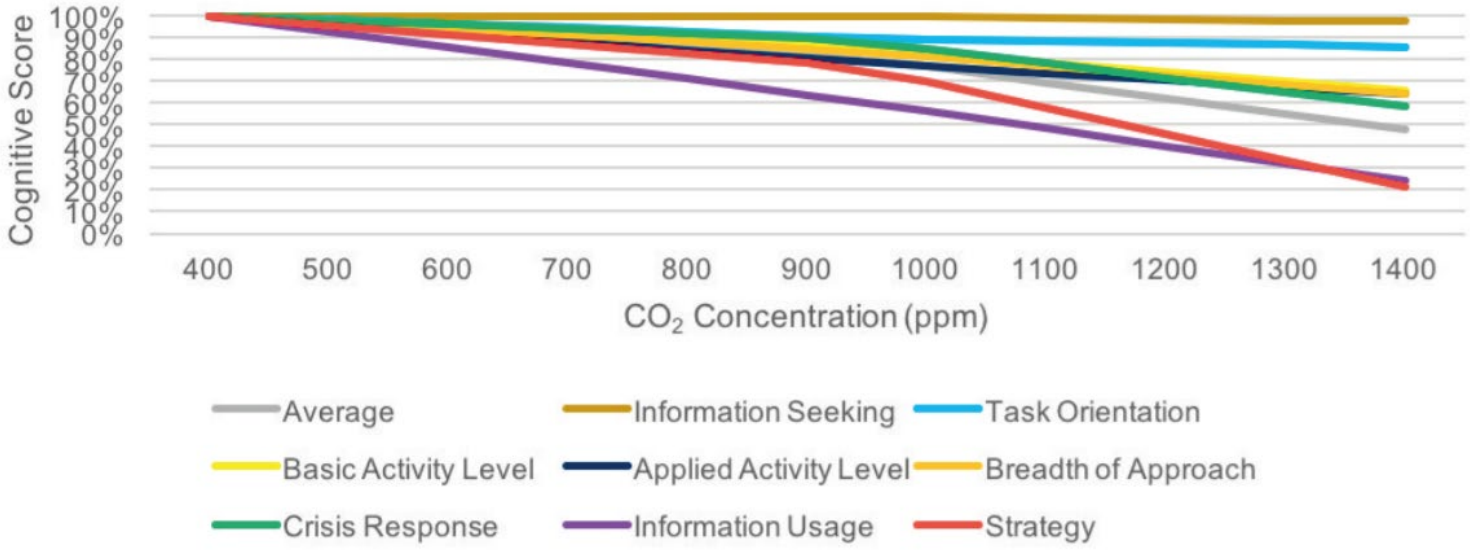
Introduction

Many of us have heard about how industrialization has drastically increased the levels of CO_2 within the atmosphere. The effect is certainly taking a toll on our environment and the overall health of our planet.

Even if the 500ppm seems like a relatively large number, it pales in comparison with the air that we breathe indoors. In rooms with 3 or more people without proper air circulation this number can triple within minutes. That might sound scary, but what is the actual effect of working in elevated CO_2 environments? This is exactly what 6 researchers from Harvard set out to answer in 2015, and their findings shocked the public health community.

Research

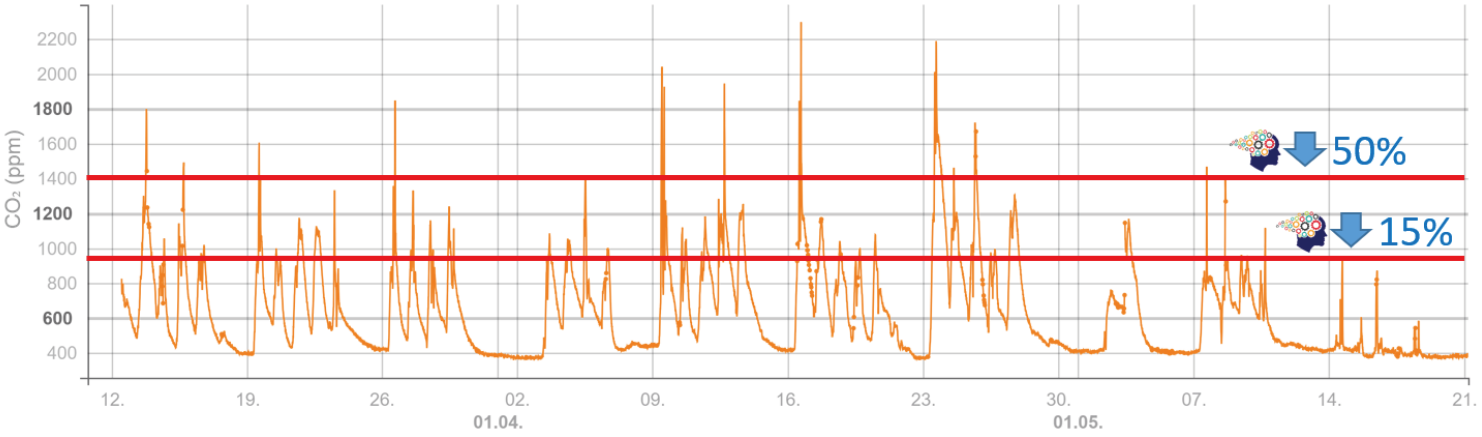
They took 22 healthy volunteers over a period of a week and exposed them to varying levels of CO_2 and cognitive assessment was performed daily using the Strategic Management Simulation (SMS) software tool, which is a computer-based test that has been designed to test the effectiveness of management-level employees through assessments of higher-order decision making. They tested the subjects on 9 different activity domains, the results are reflected in the figure below.



Shockingly! Findings report that an increase to 945 ppm our cognitive abilities decrease by 15%. However, when the CO_2 concentration reaches up to 1400 ppm, the average cognitive score drops to 50%!

Problem

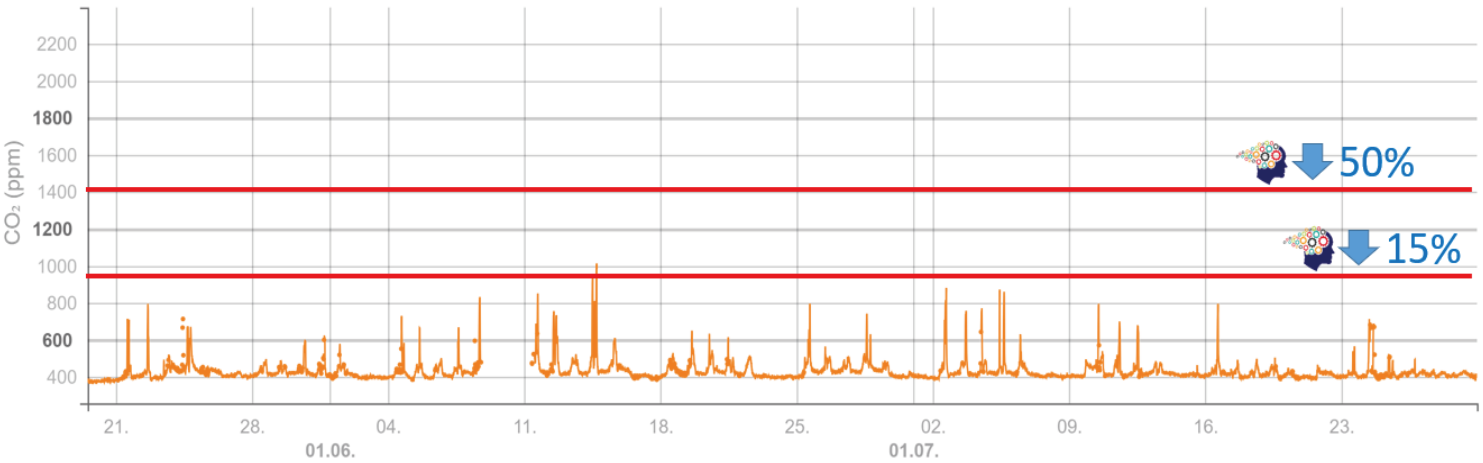
Now, as in most companies the largest part of running costs are constituted by employees, and if you are paying your employees for their knowledge-based work that depends on their cognitive abilities, how much does CO_2 buildup in the office cost you? This is exactly what we set out to measure. By installing a CO_2 monitoring system in our offices, we monitored the environment in one of our meeting rooms. The data is shown below.



Knowing that on average during a meeting there are 4 people in the room and multiplying their average cost to company (in minutes) with the time spent in high CO_2 environments, we realized that a single meeting room was responsible for approximately 2000 EUR loss in employee cognitive abilities over a period of 2 months!

Solution

A simple, easy to use monitoring system, that alerts you when the CO_2 levels are exceeding norms. The next two months of increased ventilation and regular opening of the windows when CO_2 was too high, fixed the problem – data are shown below:



Aranet4

Aranet4 is a wireless 4 in 1 sensor that monitors indoor air quality at home, school or office! Aranet 4 is a battery–powered standalone solution that measures CO_2, temperature, relative humidity and atmospheric pressure.

Values of CO_2, temperature and relative humidity are displayed on the screen and the colors on the display indicate when the CO_2 limits have exceed recommended norms. Aranet4 also has a handy app that allows Bluetooth connectivity to a smartphone to view historical data up to one week.

For large scale application, where several rooms need to be monitored, up to 100 Aranet4 devices can be connected to the Aranet PRO base station. Aranet PRO offers centralized data gathering and viewing of real time data, as well as unlimited historical information and alert functionality.

Contact us info@aranet.com
to get more information!

www.aranet.com