

"HOUSTON, WE HAVE A PROBLEM." APOLLO 13 AND THE BIRTH OF THE DIGITAL TWIN.

As a child I was fascinated with space travel and technology and watched the moon landings on TV with open mouth (yes, I am that old). Later the space shuttle appealed to my imagination. What few people know is that the Apollo space program of NASA is seen as the birth of the (digital) twins. What about that? And what is a digital twin?

Those of you who've seen the film 'Apollo' 13 know what happens when the words 'Houston, we have a problem' sound. After an explosion, the crew of Apollo 13 needed help to safely return to earth. This was possible because back on earth there was an identical copy of the spacecraft, a twin. In this way all kinds of scenarios could be tested, without exposing the crew in space to the risks of such tests. On earth, you can test and fail a hundred times, in space you have only one chance of getting it right.

Crash test

Another example of digital twins can be found in the car industry. At the end of the 1970's manufacturers began crash testing cars in order to make cars safer. At high speeds, cars were crashed into a wall or into each other. The manufacturers' scientists could then see what the effects were, how heavily distorted the car was and whether its occupants would be injured. That data was used to make changes to the design if needed.

Personally, I think smashing cars against each other could be a very pleasant activity, but manufacturers were less enthusiastic. After all, every destroyed car costs money, and the results weren't reliable either, because they could only do a limited number of crashes because of the costs. That's why manufacturers looked for ways that were faster and less expensive.

They found a solution in making a digital version of the car. They made the twin digital.

With a Digital Twin, every individual part of the car, with its physical properties such as weight, reaction to bending and other physical properties, is entered into the computer. Based on these properties, the computer can calculate per millisecond when, for example, the bumper deforms, how it deforms, and which other components deform as a result.

As you can imagine; computing power is everything.

Digital twin of your building

Just like spacecraft and cars, buildings can also be entered into the computer as digital twin. And this is exactly what we are doing with Priva ECO. We create a digital twin of your building, which has all the properties that a real building has and reacts to simulated changes in exactly the same way a real building would react.

However, this is just half of the ECO story. Priva ECO 'thinks of' scenarios that it feeds into the digital twin and the results are used to make changes to the HVAC system of a real building. And this all done fully automatically. In this way, Priva ECO harnesses this new technology to make smarter use of the available energy and achieve a better climate in your building.

If we follow the car metaphor, this way of working is comparable with a system where the computer

improves the design of the car with each simulated crash test. WOW!

Likewise, Priva ECO connects the Digital Twin with the real world to get real world improvements on comfort and energy performance with each calculation!

[Photo: NASA]

PRIVA ECO FOR YOUR BUILDING?

Leave me a note and I'll contact you



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FREE PRIVA ECO DEMO

Schedule your demo so we can explain you in detail how Priva ECO works. We will show you all available settings and dashboards, and will give you an estimate on your energy savings and improvements in comfort.