

While it is far too soon to draw sweeping conclusions from the impact that Covid-19 has had on the global economy, one thing we do know is that the coronavirus has significantly increased the speed of digitization worldwide. More, it has lowered the cost of Artificial Intelligence (AI) and Augmented Reality (AR) while triggering innovation. Digitization is crucial to supporting energy transition worldwide, allowing for the fast electrification of economies. Before the pandemic, companies and governments' qualms about AI and AR had slowed the rollout of advanced applications in many sectors, including energy. But Covid-19 has proved to be the ultimate digital catalyst, and tools created by researchers will change energy systems forever.



"The check is in the cloud."

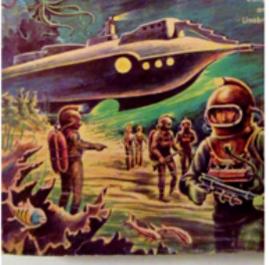
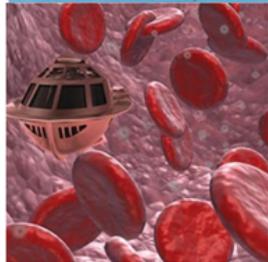
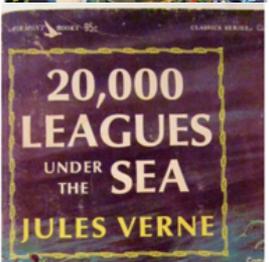
One example is an AI machine learning project with Spanish utility Iberdrola ScottishPower Renewables, which uses data recorded on wind turbines to predict turbine failures. In combination with the Massachusetts Institute of Technology (MIT), Artificial Intelligence is now predicting how much time the company has before a particular component needs to be replaced. Knowing when these failures will happen in advance, allows for timely repairs. Another is DeepMind, a British artificial intelligence subsidiary of Alphabet (Google) which forecasts wind farm power output in the United States. Machine learning makes wind power more predictable and a more viable alternative to non-renewables including coal, oil and natural gas.



Augmented Reality (AR) is booming too and takes the form of what is called Smart Assistance, which streamlines maintenance, remote support and training processes for companies. Operators are connected to the system via smart glasses through which they can visualize information. Operators can receive guidance from experts, or can identify the solutions from AI. Currently the global AR market value is roughly US \$20 Billion, though is projected to reach *ten times* that amount in the next few years. Return opportunities from investing in these sectors are significantly higher than the overall capital Markets.



Yogi Berra once famously said "it's tough to make predictions -especially about the future", yet it seems as though humankind is following the maxim that **the most reliable way to predict the future, is to create it**. Our planet is at an inflection point where technological change is accelerating even the acceleration of change. Messenger Rna vaccines, AI and AR, nano-technology and the Internet of Things seem to belong to pages of a science fiction novel or a Saturday morning episode of the Jetsons, yet are here now and changing the world and our place in it. Yogi Berra also remarked that "the future ain't what it used to be", and he was right. We can all be thankful for that, and despite the near-term pessimism about third-wave pandemic shutdowns, the future looks bright. Citius, Altius, Fortius -faster, higher, stronger.



Be safe, be well!

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