

## Game Changer 3: Machines

### Transcript

Our third major transformation is Machines, which we can think of as the built environment becoming its own ecosystem. So today when we're looking out at the world, all of us are very well aware, I think, of the "internet of things" that's growing around us. There's a proliferation of sensors out in the world. These sensors are networked together, and those networks of sensors are creating an incredible deluge of data. And because of advances in things like machine learning, we're beginning to crunch that data and use it for things we couldn't do before, and use it in much, much better ways than we were able to before. Then, you combine all these things with robotics—with physical machines—and you have the beginnings of what will be an ecosystem of machines in the world around us.

When we're looking at why we're so excited about these things and why there's so much investment in all of these different related areas, it's because of the potential and the promise of human augmentation: using machines, whether it's software machines like computers and AI, or hard machines like robotics—and obviously the two in combination—to augment humans, both cognitively, in terms of memory, and processing, and making sense of the world, and capturing data, as well as physically, extending our physical capabilities and what we can do. We are looking at the potential for machines to help push new scientific and medical horizons, as machines themselves increasingly do the experimentation, experimental design work, figuring out certain types of stuff faster than we can, stumbling across things that we would never stumble across.

And then of course getting to these machines as independent actors in their own right. As we are more successful in giving them types of autonomy and types of intelligence, really coming to understand both these soft and hard machines, and the combination of both, as being actors in their own right out there in the world, interacting with the natural world, as well as us.

Machines as a strategic issue is a huge area for just about everybody concerned with health and well-being in the united states for the future.

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