DIGITAL LEADERSHIP

An interview with

Beth Comstock
Vice Chair of GE

GE: How an Industrial Leviathan became a Digital Giant
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The Journey So Far
What have been the key milestones in your digital transformation journey?

We started our journey about five years ago. We were already picking up a lot of signals between 2008 and 2011 and understood that digital disruption was going to impact the industry in a big way. We started by incubating digital expertise via our technology group. We embedded a software analytics team at our global research center for example.

It was around 2013 when we decided to meld the best of our digital capabilities with the best of our physical capabilities. Hardware and advanced materials science have always mattered a great deal in our business, but we started focusing on the intersection of the two and began digitizing the manufacturing process, not just the things that we made. The vision started to coalesce around a digital transformation, from designing to producing to shipping and in-the-field services. Our biggest impact today has been on our service business because you are suddenly selling everything as a service.

Where is GE now in its journey towards a digital industrial company?

This is a long journey for us. I think we are about a third of the way in our digital transformation. We built an industrial-strength cloud to power all of the data needs that our industries are going to have. We have really great use cases, especially in the energy sector and in transportation.

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Can you share some examples of digital initiatives you have launched?

A great example is our “Digital Wind Farm”1, which connects the embedded sensors and controls in the actual wind turbine, providing connectivity across multiple layers. The blades of the turbine are able to sense the environment. Using technologies such as radar and lidar2, they know where the wind is coming from and motors shift the pitch of the blade to react to the wind. So, the whole wind farm is orchestrating and communicating and optimizing for that specific environment, even for microclimates that may be different within the wind farm. They are then able to send information about the cost and the quality of the energy being generated to the utility company. This way, the utility can plan to not use other energy sources, such as coal or gas, when wind is more efficient. It’s all done with Predix, our cloud-based platform for the Industrial Internet, which provides a digital infrastructure for the wind farm, enabling collection, visualization and analysis of unit- and site-level data.

GE’s Predix Platform – The Cornerstone Of GE’s Digital Strategy

Predix is very much at the core of your digital transformation. Can you explain the concept of Predix and why you want to become a platform company?

If you think of the range of industries that GE is in – energy, transportation, healthcare – you realize that some of the basic capabilities are similar. You want to connect your machines, know how they are performing and predict failure and maintenance. That’s the vision.

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Why did you decide to open up your platform?

The more people that can be building and contributing non-confidential data to the stack, the better the outcomes are. This is why we have opened up our Predix platform to our customers – and even competitors – to enable them to write applications on the platform. We already have 11,000 developers at this stage.

So you wanted to create a network effect?

With Predix, we are creating a network effect and an intelligence effect. The more people you have on the platform contributing, the smarter the whole system gets.

Implementing The Strategy: Building, Acquisitions Or Greenfield

How do you operationalize GE’s digital strategy? Investing, Greenfield or acquisitions?

I think we have done a little bit of all.

What we have done especially well is investing in digital startups that we can embed in our technical stack. An example is Maana, which acts like a search engine for the Industrial Internet.

We have invested in startups from a venture perspective and are also using their technology as a part of our offering. So, as they grow, we grow.

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The creation of our new GE startup, Current, powered by GE – which focuses on energy efficiency, energy management, and on-site power – is an example of us launching Greenfield operations. It can be a pretty profound shift for a 140-year-old business. Our startup goes to market in a different way. The measurements for the organization are different, as is the way we drive our commercial strategy.

“In the past, GE grew a lot through acquisitions. Recently, we have focused on the organic route. When something is new, you have to grow it. You can’t buy everything.”
While we have focused less on acquisitions, we recently announced the acquisition of Daintree Networks, which leads the market in smart building control, sensing, and enterprise IoT applications. Together, we will make buildings of all sizes smarter, more energy efficient, and be the gateway to new services that create value for customers both in energy and beyond it.

In the past, GE grew a lot through acquisitions. Recently, we have focused on the organic route. When something is new, you have to grow it. You can’t buy everything. We invested in technology and innovation to grow from within – to grow ourselves.

In the fast-moving digital environment, how can you build quickly enough?

Partnerships have helped us advance our capabilities really rapidly. We are now working with Cisco, Intel, Pivotal and many startups. A lot more partnerships are happening at GE and it doesn’t always require an ownership stage.

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The new formula of success is that you don’t do it all yourself – you have to know what you have to be uniquely good at.

With technology evolving so fast, is it still possible to have a long-term strategy? Do you still have three- or five-year strategy plans?

You still need to have a vision of where you want to go or understand your differentiation. But you have to be much more adaptable. Maybe your vision stays the same, but how you get there may change faster than you could have imagined. So, I think the three- to five-year plans are more vision setting. They are more like scenario planning that tells you what the world might look like.

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Culture

GE is well over a century old. How did you adapt GE’s culture to the digital world?

We had to get leaner, more agile and react faster. We told our employees - “We are going to hold you accountable for being faster. You can try something. It doesn't have to be perfect every time.” Of course, this does not apply to everything that we do – we want a perfect flight for a jet engine. But for some of the other things, perfection is not required.

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We launched FastWorks, our lean startup method, which is all about launching something in a minimally viable way. The key principle is that you only fund what you need to get to the next stage of development. It’s like having our business leaders act like venture capitalists – funding things earlier and faster, killing things quicker.

How do you encourage people to experiment and accept a very iterative process?

We did a massive overhaul of GE’s incentive structure to better reflect what we are trying to do. We are also changing how we fund projects – implementing this seed/ launch/ growth stage gate funding. Business units in the past might have said, “I made $5 million in five years.” Now, we would have a series of iterative questions instead. For example, “What can you do with $50,000 in five weeks to validate that this is even a need in the marketplace?” And “What can you do with $150,000 in three months to validate that we even have the technology that’s going to be required?”

We have not figured it all out but that’s the transformation that’s happening real-time here.
Industrial Leviathan to Digital Giant

GE’s DIGITAL JOURNEY in NUMBERS

- 140 year old company
- 2011 when GE started its digital transformation
- 1 billion USD run rate investments so far into digital efforts
- Objective of 15 billion USD in digital revenue by 2020
- 11,000 developers already writing applications on Predix
- 50 million data elements of industrial assets secured and monitored everyday

(We are about a third of the way in our digital transformation - Beth Comstock)

GE’S DIGITAL STRATEGY

Investing
in digital startups – Maana, a search engine for the Industrial Internet

MAANA

Greenfield
GE startup “Current, powered by GE”, focusing on energy efficiency

Current, powered by GE

Acquisitions
Daintree Networks, smart building control/ enterprise IoT

Daintree Networks

Partnerships
Cisco
Intel
Pivotal
Microsoft
Oracle
amongst others

Partnerships

Organic Growth
We invested in technology and innovation to grow from within

Beth Comstock
What is the culture you would like for GE? How would you define it?

I think the company has to be more collaborative, more open and react even faster. We want to instill a culture of permanent iteration – a culture obsessed with constant improvement; a culture of perseverance.

We did a massive overhaul of GE’s incentive structure to better reflect what we are trying to do.

We have Chief Digital Officers (CDOs) for each line of business and they are all part of the centralized digital unit. They report to our head of digital and their business units. We need to have that dual oversight to make sure the business needs are represented, but also the digital needs are not underwhelmed. Our CDOs have revenue numbers and productivity numbers. Those roll up to the business leaders’ P&L. So, they have accountability in both places. They’ve got to get it built, and they have to make sure it gets rolled in a way that the customer finds value.

Does the move of GE’s HQ to Boston play a role in this change of culture?

Yes, I think it’s a great manifestation of our new culture and the acknowledgement that we are a much more distributed company. We have turned our headquarters into centers of expertise that are connected to the outside world. The role of our headquarters is now more about bringing in new models from the outside and finding ways to adapt and translate them for our business units. Boston is also a city where there is a lot of Industrial Internet capability development going on.

Governance

You created GE Digital. What was the rationale behind creating this new unit?

We needed to get to scale fast. You can’t have five different businesses building five different technology stacks and clouds. It does not make sense. We centralized the digital capabilities until we felt confident we had the heft we need while at the same time creating that connectivity to the business unit and the market. So, it’s a tension. It’s neither central nor distributed, and you are constantly toggling back and forth.

Is there a dual reporting structure?

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The Future

How do you see GE evolving in the next ten to twenty years?

We will still be selling hardware. You can’t fly a plane without an engine. You can’t create electricity without some kind of electricity power generation. These industries will continue to exist. But more and more of our revenue will be coming from new service models, from “as a service” and not just from the pure hardware.

Just get started – don’t over-analyze things.

Can you give us some examples of these new service models?

Let me give you an example of a new service we are incubating – inspection done by drones. Drones surveying oil rigs in the sea and wind farms. There will be new applications, new kinds of mash-up of the hardware and the software. But GE will continue to remain in its core industries, perhaps looking at being more of a system partner than just a machine partner.

What would you recommend to companies on how to handle their shift to digital?

Just get started – don’t over-analyze things. Pick an area to get smart. The more you do, the smarter you get. I also think partnering with others who have the expertise is the fastest way to get there.
Beth Comstock is the first female vice chair of GE. She leads the organization’s Business Innovations unit, which seeks to accelerate growth from new service models. Prior to her current role, Beth served as GE’s chief marketing and commercial officer, and before that was President of Integrated Media at NBC Universal, where she oversaw the company’s digital efforts, including early development of hulu.com, Peacock Equity, and acquiring village.com.

GE is a highly diverse business and a venerable 140-year-old organization that occupies a significant place in the US’ corporate history. How did this corporate giant take such giant strides in its digital transformation to position itself as one of the top ten software companies globally by 2020? Capgemini Consulting spoke to Beth Comstock to understand more about GE’s strategy for shifting from industrial leviathan to digital giant. Incubating state-of-the-art technology, investments in startups, and strategic partnerships are some of the ingredients GE has used to propel its digital transformation.