Strategies for the digital leader

Keys to delivering excellence in digital manufacturing today

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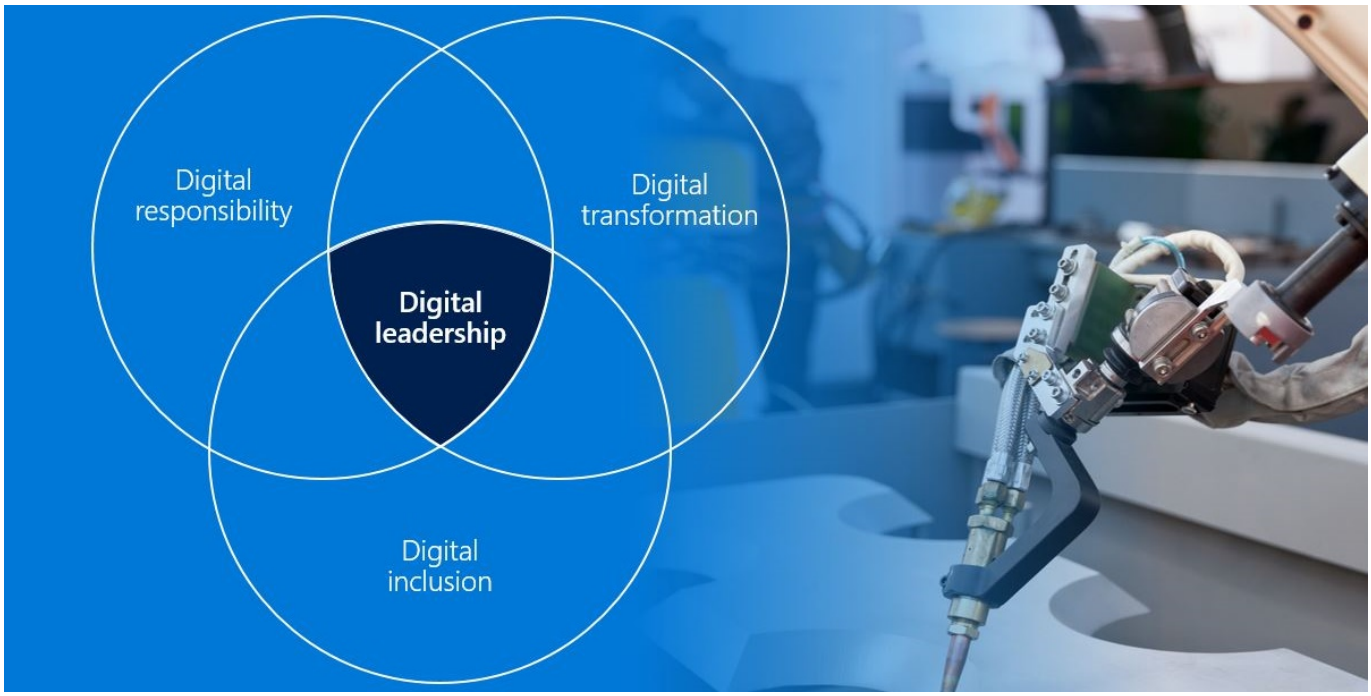
When we talk about digital transformation, we essentially talk about technology and disruption. We like to remind ourselves that "digital" is more than that; "digital" creates more opportunity than simply digital transformation for enterprises. We like the concept of digital leadership as it is broader and more inclusive. This is a role that demands a new mindset that stresses personal and corporate integrity and responsibility more than ever before, as technologists, as business people, as leaders.

What it takes to be a digital leader



Digital inclusion and digital responsibility are two topics we find as relevant to digital transformation. Digital inclusion is about making sure everyone has access to technology, to the Internet, and to critical services such as health, energy, clean water, and education.

Digital responsibility is about being sensitive to, and taking care of, the environment, the world, and sustainability as we go through our digital journeys. Coupled with digital transformation, we really see this as an opportunity to elevate the dialogue to digital leadership.

Leadership is one of the constants in these times of change. Digital leadership means proactively embracing change to eagerly pursue digital transformation rather than simply reacting to the disruptive changes that technology is creating all around us.

Even though the world is changing, the importance of leadership and people has not. Your goals as leaders or enterprises also have not changed, you're still striving for sustained growth, agile innovation and operational excellence.

I believe this is critical grounding. Now, we can talk about "leading with digital." The most fundamental premise is that leaders need to take action and must do so urgently. There is not one industry or company that will not be affected by this change. Leaders must reevaluate how they leverage technology, must rethink their company culture, must reassess the ecosystem that they are operating in, must reinvent their business processes, and must consider transformation of their products, services or even their business models.

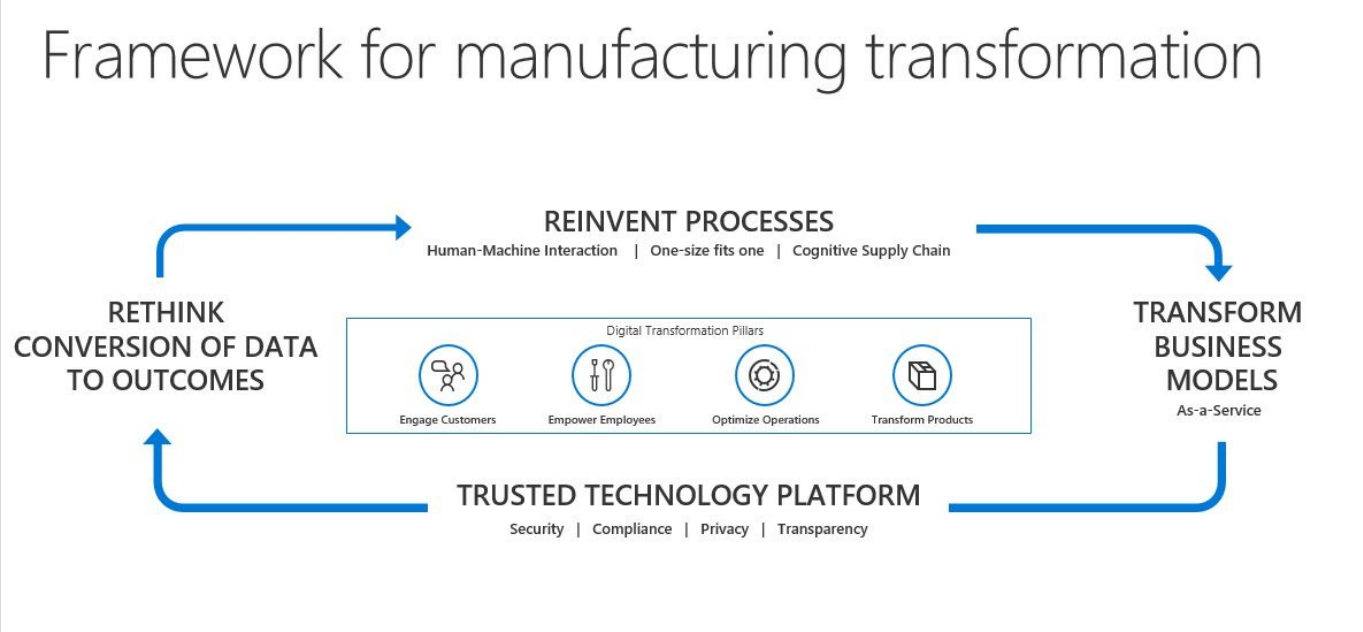
Here is a framework that those who decide to act as digital leaders can follow to adapt, or even thrive, in the modern manufacturing era.

A framework for manufacturing transformation

As one goes through this transformation to become a leader or maintain leadership status, one will need to keep four things in mind:

- Engaging customers, staying connected and offering new experiences.
- Empowering employees by making data and intelligence available to them, giving them the power to make better decisions and ensure productivity improvements.
- Optimizing operations at a higher level, leveraging more connectivity and data, improving levels of automation and adding predictive capabilities in the organization.
- Transforming products or services to capitalize on new revenue streams.

This entire process sits on the foundation of a technology platform. The "digital enterprise" will need a platform to support new levels of automation, customization, adaptation and security in order to digitally transform itself.



Rethink conversion of data to outcomes

The first consideration in delivering excellence in digital manufacturing today is the notion that today's new levels of connectivity allow us to optimize all assets including the entire supply chain, at a global level. One needs to get rid of silos, connect the enterprise from customers all the way to suppliers, and create a data highway.

Here is the key point: This digital journey is all about adopting a data culture. It is leadership's role to instill a data culture and ensure that the entire organization is looking at one version of truth. This will only happen if all essential data sources are connected and the enterprise is capable of operating on the basis of data-driven insights. By determining the outcomes to be achieved first, it is easier to then get to what data is needed to drive those outcomes. This approach will enable faster time-to-value and quicker iterations. One needs to become rather agile regarding the flow of data to insights to actions to outcomes.

We like to think of this cycle in terms of "think big, start small, move fast." Go through your iterations as quickly as possible. Focus on data-enabled outcomes. Whether you fail fast or learn fast, it is all about data.

Reinvent business processes

The next step is to rethink your business processes. As that is happening, always start from customers "Digital culture" is as much about data as it is about a customer-mindset.

There are a number of manufacturing-specific, technology-driven trends that are informing the future of manufacturing. Let's start with robots and human-to-machine interactions. Robots are getting smaller, smarter, and safer to work with. They are learning collectively and are now able to handle very sensitive tasks and also extremely heavy workloads.

For us as manufacturing leaders, this is something to think about in terms of workforce transformation. We need to figure out what the new professions and disciplines are in the digital age; whether those are data-related or software-related or digital transformation-related. We need to make sure we have the right skillsets and competencies in the new era. We will also need to re-equip our subject matter experts, our specialists, our designers, our engineers, and our technical staff with new technology skills such as mixed reality, additive manufacturing, new simulation techniques and capabilities, and the list goes on. This is critical. This will boost productivity and innovation.

Manufacturing is faced with the significant problem of an aging workforce and a serious skills shortage. Perhaps robots and new technology can help us fill some of that gap and even enable manufacturers to hang on to their aging workforce for a little while longer, using them for IP-related tasks rather than physical. With robots handling more physical jobs and remote technology enabling knowledge transfer, we don't have to lose our deep bench of expert workers as soon as we thought we would.

On the flip-side, studies suggest that up to 50 percent of all jobs will be replaced by robots. This is a major issue of commercial, economic and social importance for all parties concerned; from shareholders to employees, to governments, to the social security system, to economists.

Today's manufacturing environment is high on capex investment and low on flexibility; hence "mass production." Take newly skilled, highly capable, smart robots, and add things like mixed reality, digital twins, additive manufacturing and artificial intelligence (AI), and you are looking at a very different level of automation in the manufacturing enterprise. All of these technology disruptions and advancements will help move manufacturing from a "mass production" paradigm to a "mass customization" paradigm. I

like to call this "one-size-fits-one." This is when the digital manufacturer will be able to deliver every single product customized to order, still at similar price points and delivery lead times. This is going to be a revolution in the supply chain.

Now, let's add the concept of horizontal and vertical integration of the value chain, enabled by deep learning and AI. This moves us to the notion of "cognitive supply chains." This level of automation and sophistication in the management of supply chains will mean AI will make 30-40 percent of all decisions, better than human beings in the day-to-day of manufacturing. Our Microsoft Manufacturing business is an outstanding example of this. In just 18 months, they were able to connect every single data source, including financial data, logistics data, manufacturing data, other IT systems, as well as all suppliers. They are now at a phase where they can predict potential failures or issues with assets or suppliers or products. Employees in the predictive manufacturing enterprise can tap into data and make decisions, proactively. We are looking at a self-healing, self-running, and self-learning manufacturing entity in just a few years. I am energized to say that we, Microsoft, will be able to share all that know-how with our manufacturing customers and offer that as a capability. Let us know if you are interested.

Transform business models

With these new levels of automation, manufacturers are moving from product-centric models to new types of models that expand their reach, enhance the customer experience, and capitalize on technology to capture additional revenue from higher margin services.

Leading manufacturers, the disruptors, are also exploring new business models as they reinvent who they are, what their value proposition is, and how they monetize. For example, Ecolab went from selling chemicals to ensuring increased water recycling and clean water supply. Rolls-Royce has embraced AI and machine learning to sell "power-by-the-hour." thyssenkrupp now offers maintenance for many elevator brands in addition
to their own.

Engage a trusted technology platform and build a trusted partnership

The common denominator across all of these steps is to use a trusted technology platform and build a trusted partnership, both areas where Microsoft is a leader. We are the most business-friendly, the most secure, the most open, the most ubiquitous, and the most flexible platform. We ensure the fastest time-to-value.

We believe that no one else has the end-to-end platform capabilities that enable digital leaders to drive transformation like Microsoft can. We are proud of and energized by the fact that leading manufacturers are partnering with Microsoft as they become digital entities and create their own digital portfolios.

Opportunity for social and economic impact

Manufacturing is changing forever. It is happening everywhere. It is happening to anyone. It is happening fast. There is a first-mover advantage in this age of change. Capturing new opportunities can only happen if you're a digital leader, embracing digital leadership to propel you, your customers, and the world into a new era.

As we look to the future, it is exciting to see that advanced technologies are enabling huge opportunities across many industries. Organizations that take the steps to embrace digital transformation to evolve how they leverage data, analytics and the cloud generate an average of $100 million (or 8% points) more operating income each year than those who lag behind.[1]

I invite you to go to Microsoft's manufacturing site to learn how to get started on your own journey today.

[1] Keystone Strategy interviews Oct 2015 – Mar 2016. Based on interviews with 340+ leading enterprises comparing data platform maturity with business performance, controlling for company size and industry. Incremental operating income of $100M is based on median company revenue of $3.4B.

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