Microsoft

Digital transformation: seven steps to success

How businesses can stay relevant and competitive in today's new digital era

Featuring insights by Çağlayan Arkan,
General Manager of Worldwide Manufacturing
& Resources at Microsoft

Resource Guide

Executive Summary

Technology is omnipresent, and this access to digital services is playing an increasing role in everything we do: shaping growth, changing industry landscapes and providing the catalyst for new business models, products, services and experiences.

Capitalizing on this phenomenon is the key to innovation and growth. From the rise of connected devices and other "things" within the Internet of Things (IoT), the growing mounds of data, and the emergence of advanced analytics, machine learning and artificial intelligence, to augmented reality and the next frontiers, the challenge and opportunity for business leaders is to harness the ubiquitous, disruptive force of technology to be more agile, fuel efficiency and ultimately shape their destiny.

Digital transformation represents the opportunity for businesses to think and operate like digital companies in the way they engage their customers, empower their employees, optimize their operations and transform their products.

Companies who doing this are seeing strong results: reduced overhead, conservation of resources, increased profits, and optimized operational efficiencies. And organizations mature in their journey with digital transformation generate an average of $100 million more in additional operating income each year than those who lag behind.1 Yet, only 14 percent of organizations today say they have completely digitized their business processes[2] and only 5 percent of organizations feel that they have mastered digital to a point of differentiation from their competitors.[3]

For those businesses who can successfully disrupt and differentiate, the potential is remarkable.

Microsoft provides the solutions, services and roadmap to help you get started today. In this resource guide, you will learn actionable insights from one of Microsoft's top digital strategists, Çağlayan Arkan, General Manager of Worldwide Manufacturing & Resources, that outline seven steps to help you map your path to digital transformation success.

Çağlayan Arkan guides Microsoft's Worldwide Manufacturing and Resources team as the General Manager. He and his team work with customers to empower their digital business transformations through the power of technology and help them thrive in today's era of intelligence.

The digital transformation opportunity

Digital transformation is upon us, and every industry and every business is part of it. Change is happening fast and many, if not all, industries will be redefined. This new era is defined by transformation and disruption. The disruptors will be among the first digital organizations that define what a "digital enterprise" really looks like.

With this topic top of mind with executives, I hear the same question from nearly every company I talk to, regardless of size or industry: What does it mean to go through a digital transformation? What does it take? What is important?

This transformation requires a new mindset

Digital transformation is a technology proposition. There's no doubt that the impact of technology is unprecedented in terms of things like unlimited compute power and unlimited storage that are becoming a reality today, as well as possibilities offered by disruptive technologies like IoT, artificial intelligence, deep learning, mixed reality, and so on. Therefore, it is fair to say that technology will change the world, yet, once again.

We also know that the ability to connect and manage all assets, products, employees and customers globally has not really ever been possible or feasible, as well. Why is this important? I believe in the notion that optimizing parts will sub-optimize the whole. For the first time ever, large enterprises will be able to optimize their businesses at global level in a way that was not possible before.

With these thoughts as a back-drop, let me share some of the fundamental thoughts and observations regarding digital transformation.

Ecolab: Solving global water challenges with Microsoft cloud technologies

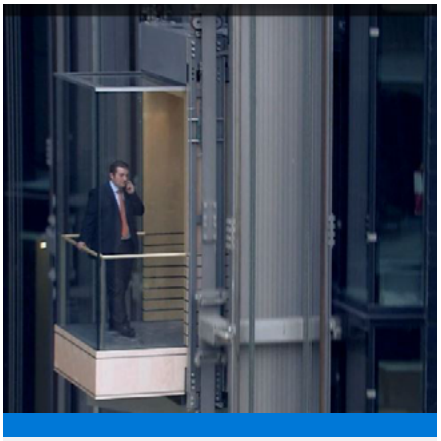
By 2030, the demand for fresh water is projected to outpace supply by almost 40 percent. Ecolab, a leading global provider of water, hygiene, and energy technologies and services, is helping companies worldwide operate more sustainably with the Microsoft cloud—including Azure and Dynamics CRM Online. Connected to thousands of sensors in facilities worldwide, the platform collects and analyzes real-time water usage data to improve efficiency and cut water, energy, and operational costs.

STEP 1 Leadership matters

Technology is a means, not an end, for transformation. It's about leaders, leadership, and people. Technology is accessible to everyone, so that is not where differentiation happens. Differentiation starts with leadership's vision for change and a clear execution strategy as to how to bring the rest of the organization with the leader. Those leaders need to understand how technology will impact their businesses; how to really think about a 24x7 connection to all of their products, customers, assets and people; and how all of this will change the competitive landscape. They need to realize that being passive is not an option. This is now a "disrupt or be disrupted world."

Leaders will need to develop their own vision, communicate it starting from their change agents internally and embark on the journey. One important thing to realize here is that there is not only one way to go about digital transformation. One can start from customer systems, back-end operations, frontline employees, or even consider a complete change in business model, for example, how to monetize products and services. It is more about identifying the right use cases that will make the most impact on things like customers or the bottom-line.

For example, Ecolab has chosen to connect their assets leveraging Microsoft's Azure IoT and Cortana Analytics Suite and then link those capabilities to their employees that engage with their customers every day, leveraging Dynamics CRM and Office365. In Ecolab's case, service reps ensure their customers are provided with clean water where and when needed. Microsoft is uniquely positioned to make the newly acquired business insights from the rich data platform "actionable."



ThyssenKrupp Elevator:
The Internet of Things gives the world's cities a major lift

ThyssenKrupp Elevator - a leading global provider of elevators - has 1.1 million machines operating in 150 countries, 49,000 employees, and reported sales of EUR €6.2 billion (US $8.4 billion) in 2013. With installations in buildings worldwide, TKE wanted to further improve its competitive advantage by increasing elevator reliability and uptime. With help from Microsoft partner CGI, TKE created an intelligent, cloud-based solution based on Microsoft Azure Intelligent Systems Services, Power BI for Office 365.

STEP 2 Drive culture change through effective change management

As Industry 4.0 suggests, what is going on in the industry today is nothing short of a revolution. A revolution that requires a culture change across the organization. This concept of becoming a "digital" enterprise will inform and change how a company makes decisions; how it engages customers; how it manages its supply chain; how it innovates, designs, manufactures—and the list goes on. Organizations need to communicate what their "re-invented core" is about, what their "re-invented brand" is about, what their new behaviors are, what their new mind-set needs to be, what the new value proposition is, and how all of these factors will affect how employees are expected to perform. If that is not taken care of, the organization will face challenges in transitioning to the new culture or maybe even experience chaos. People will be skeptical.

ThyssenKrupp Elevator, as part of their "digital" journey, is paying a lot of attention to leadership development, change management, leadership awareness regarding technology. ThyssenKrupp leadership and Microsoft have been engaging and comparing notes. Microsoft is always prepared to be transparent with its customers regarding its own transformation and share learnings.

Rolls-Royce: Rolls-Royce and Microsoft collaborate to create new digital capabilities

Rolls-Royce has more than 13,000 engines for commercial aircraft in service around the world, and for the past 20 years, it has offered customers comprehensive engine maintenance services that help keep aircraft available and efficient. As the rapidly increasing volume of data coming from many different types of aircraft equipment overtakes the airlines' ability to analyze and gain insight from it, Rolls-Royce is using the Microsoft Azure platform to fundamentally transform how it uses data to better serve its customers.

STEP 3 Connect your customers, products, assets and people

Organizations need to understand that, unlike in the past, the product they are delivering to customers is now going to be connected 24x7 to their enterprise. This will enable them to know what is going on with that product in terms of what features are being used, how the product is performing, and much more. In addition, organizations can connect to their customers and their customers' environments 24x7, not limited to the customer systems themselves, but also by way of social listening or IoT. Add to that, connections to all of the assets in the manufacturing environment, from the supply chain to the field, as well as employees themselves. There are connections to all of these things, all at the same time. This means there is a ton more data to collect, understand, reason over, and get insights from. Therein will lie mind-blowing insights, facts, and clues that, for an organization, might not have been available before. This is the new gold mine. Those new insights will inform an organization's next steps and how to take those to action. Also, at that point, organizations will want to do more of the same, in terms of having more data, more analytics, and more learnings in order to take more actions. That is how the digital journey will typically start.

Through our new strategic partnership, Rolls-Royce is now able to monitor 13,000 jet engines on the move around the globe, at any given time. They can monitor their movement, their state and health, as well as know their destinations and take actions if necessary. For example, the new system that we built in partnership allows Rolls-Royce to know that they can "double-click" on a plane, then the jet engine, and then all the way down to a part in the engine, where they can have insight into that part's condition as well as understand its remaining useful life and what needs to be done. Then, they can simply click an "action" button on the dashboard to notify an engineer at the airport when the plane will land and if the engine needs service, with detailed information including the availability of spare parts if a replacement is needed. This new system enables Rolls-Royce to provide a very different service to their airline customers and help influence 70 percent of the airline's total operating cost base, including fuel management. With this, Rolls-Royce has moved from selling jet engines to selling "power by the hour."

STEP 4 Adopt a data culture

Connecting all of the above—including products, customers, assets and people—will generate tremendous amounts of data. Microsoft's platform makes it very quick and easy to securely ingest, aggregate, cleanse and store data, as well as mesh that together with other sources of structured and unstructured data in order to run analytics on it. Our platform is unique in its ability to reduce engineering dependencies and let data scientists do data science and enable enterprises to get to insights quickly, easily. One statistic that I read argues that 90 percent of the total time that is spent on analytics goes to preparing the data. Our engineering vision is to make it so easy that our customers will spend 10 percent of what is typical to analyze data and get to insights more quickly.

We know, from our experience with customers like ThyssenKrupp, Jabil, Rolls-Royce and many others, that there are unprecedented, mind-blowing insights in that data that can tremendously impact the businesses. Therefore, I will posit that enterprises need to shift from making decisions based on habit, gut feelings, opinions, or experiences, to making decisions based on data. We call it adopting a data culture. It is very important in the digital world not only to be data driven, but that organizations understand what is in their data. And, it's not just about that data alone; organizations must understand what third-party data and what other data sources are impacting what they do.

One of our hi-tech manufacturing customers had been facing quality problems and was seeing higher scrap rates in some locations versus others, costing them millions. It was not until they brought their production data together with weather data that they were able to realize that significant weather systems such as thunderstorms were impacting the power grid in such a way that small fluctuations were greatly influencing the highly sensitive manufacturing environment.

STEP 5 Experiment and fail fast

The IT industry has this reputation of long planning and implementation cycles for projects that cost millions of dollars and last years. To make matters worse, the history also shows a relatively low success rate in terms of those expensive IT projects delivering the desired outcomes. ERP, CRM, and MES projects are typical examples.

Now, that era is over. Today's digital era is all about experimenting in monthly, if not weekly, cycles. It is a "fail fast" or "learn fast" era now. Businesses need to find the use case, get the data, understand what is in that data, get the insights/intelligence, learn from it, take action. If it fails, go on to the next cycle and the next use case. If it works, understand how to expand or repeat it. It is those experimental, short cycles of transformation that are very key in the digital era because things are happening very fast. It is all about either disrupting or adopting early, and not being left behind.

No enterprise or industry is exempt from this. All that said, this does not take away planning or being deliberate on what opportunities to go after. Gartner suggests to cluster use cases on a grid that projects improvement on customer experiences and increases on organization's performance. There may be other means of prioritizing or stack ranking. Yet, the fundamental point here is that organizations need to start somewhere, start immediately, and leverage the data that are available to them.

STEP 6 Think ecosystem and become an enterprise software company

No longer can organizations go it alone as an enterprise. Even those who have partner-centric businesses, like Microsoft, still need to re-think their partners, eco-system(s), and supply-chain. It is no longer about one-off relationships. It is about re-making industries, creating new eco-systems, markets, and market-places. Businesses must think holistically. They must think ecosystem. They must think end-to-end supply chain. Then, disrupt or optimize to that level.

Jabil: From the factory floor to the cloud: integrating predictive analytics with real-time manufacturing

Jabil and Microsoft collaborated on a pilot project that connected an electronics manufacturing production line to the cloud. Collecting more than 1 million data points from each assembly across a 32-step, four-hour manufacturing process, Jabil was able to anticipate and avert more than half of circuit board failures at the second step in the process, and the remaining 45 percent at step 6. This effectively means that by using machine learning, board errors can be detected early in the production line. As a result, the errors can be corrected prior to adding expensive electronic components and creating costly errors that end up on shop shelves. The end results are a reduction in scrapped materials and warranty costs, and an increase in customer satisfaction.

To help accelerate a new kind of value proposition in the ecosystem, businesses may find that they even need to start building a new set of partnerships. And not just software partners or systems integrators, but they will need to build or leverage existing ecosystems with new kinds of collaboration already established, such as industry standards bodies like OPC and others.

Microsoft has partnered with the OPC Foundation on the OPC UA standard and today tens of millions of devices in the manufacturing environments, plant floors are ready to ingest data to Azure and also able to receive a signal from the platform. Microsoft's extended support for the OPC UA open source software stack spans its IoT offerings, from local connectivity with Windows devices to cloud connectivity via the Microsoft Azure platform. Integration with Azure IoT allows customers to easily send OPC UA telemetry data to the Azure cloud, as well as to command and control their OPC UA devices remotely from the Azure cloud.

In addition, Windows 10 devices running the Universal Windows Platform can connect and openly communicate with other IoT devices via OPC UA. These capabilities will reduce barriers to IoT adoption and help deliver immediate value for customers by allowing them to automate business processes, reduce costs through better operational excellence, introduce digital business models for new revenue streams, and accelerate innovation.

Another prominent example is our partnership with Jabil. Jabil, empowered by Microsoft, created the first digital quality assurance system, connecting an entire production line. Jabil essentially reinvented its value proposition by developing a plant floor quality assurance solution that not only analyzes real-time problems and defects, but also identifies errors or failures before they even occur. Using Machine Learning, Microsoft Azure IoT Suite, Cortana Analytics, and big data analytics, Jabil has created a digital, intelligent, and predictive factory that delivers an 80 percent prediction accuracy rate. This allows for greater yield, including a 17 percent reduction in scrap and 10 percent savings in energy.

STEP 7 Who is my Uber?

Finally, companies must ask themselves, "who is my Uber?" They must understand that the competitive threat will not be limited to existing players in their industry. In this new era, organizations know they will be disrupted if they don't change and operate differently, but, they don't always necessarily know where the threat will come from. It could come directly from within the industry, or adjacent industries due to the convergence that is happening across the marketplace. Or, the threat could even come from a new up-and-coming company, as we saw with Uber or Airbnb when they both disrupted established industries. Always ask that question and listen to the ground.

In summary, *START NOW*, or risk being left behind.

— **Çağlayan Arkan**, General Manager of Worldwide Manufacturing & Resources at Microsoft

Why bet on Microsoft as your transformation partner

Technology is both a disruptor and catalyst for growth. It is not just adding capability but changing business models. In this fast-moving digital era, you have to pick your technology partners carefully—making sure they not only have the capabilities you need, but that their approach empowers your agility, efficiencies and differentiation.

Microsoft delivers an amazing breadth of solutions, but more importantly, we're working in a way that prioritizes flexibility, integration and trust. We are both working in this way and delivering solutions that support this approach.

Flexible:

With your flexibility as our priority, we are focused on building technology solutions that become essential but invisible to help your people get more done. Making sure our solutions meet your employees, developers and IT professionals at their skill sets—so everyone can move forward. We're also making it possible for you to bridge your existing investments to cloud by enabling true hybrid scenarios—where apps/data span on-premises resources and cloud resources. And with the reality of today's heterogeneous world openness is critical—building technology that connects old and new, theirs and ours, that works on any device.

Integrated:

Some tech vendors would have you spend more on integration than you do on their solutions. To deliver better value, our approach is different—it's built for—and open to—extensibility. Our powerful extensibility model is attractive to the millions of developers and hundreds of thousands of our partners who build on our cloud platform—where they can also integrate our differentiated capabilities such as identity management, rich data management, machine learning and advanced analytics. Underpinning all of this is our relentless drive to make all of the solutions we deliver to you—work together—so you aren't burdened by integration.

Trustworthy:

After four decades of working with you, we understand what enterprises and organizations are challenged with—we face many of the same challenges ourselves. In the mobile-first, cloud-first world, trust is paramount. That's why we continue to invest heavily not just in our cloud infrastructure but also in security, privacy and compliance. We pride ourselves on both leading and following industry compliance standards. Our people-centric security model empowers you at entirely new levels. You need to be able to protect everything from pixels on a screen and cells in a table, to data streams, documents, databases, apps, web sites, clouds, and much more. With identity at the center point, Active Directory becomes your boardroom's best friend. And more broadly—when it comes to cybercrime, we proactively work to fight cybercrime that impacts not just individual consumers—but that also impacts enterprises and organizations. As we pursue our mission to help you achieve more, Microsoft will continue to be committed to developing trusted solutions for our customers. To do so, we'll continue working with industry partners, competitors, worldwide regulators and global law enforcement.

The path to digital

The path to digital transformation is less about capitalizing on new technology; it requires business leaders to embrace a different way of bringing together people and processes with those technology tools as well as an openness to re-envisioning traditional business models and the mindset of a digital company in terms of how you engage your customers, empower your employees and optimize your operations to reinvent products and business models. Digital transformation is your transformation, supported by Microsoft's commitment to empower every person and every organization on the planet to achieve more.

Get started today

Work with Microsoft to start your digital business transformation today. Use our knowledge and expertise in a business outcome workshop, deeper solution session, private preview, or customer focus group—or develop a proof of concept or pilot to drive the right implementations and solutions for your business.

- In a business outcome workshop, you can engage with Microsoft Services one-on-one to scope innovative solutions, architectural designs, and next steps. We will take a look at where you are, what you are trying to achieve, and how we can help you get there.
- In a deeper solution session, you can explore any of our solution areas in more detail to develop a comprehensive plan of how to proceed.
- In a private preview and customer focus group, work directly with engineering teams on innovative new capabilities—starting with our robust tools and your existing infrastructure—to begin developing solutions that meet your specific needs.
- Begin a proof of concept (POC) or a pilot with support of key engineering teams and partners.

No matter how you start, you can count on Microsoft to provide the solutions and resources to help you transform your business.

Additional Resources

- Çağlayan Arkan's blog
- Businesses leading with digital transformation
- Azure IoT Suite
- Analytics Platform System
- Cortana Intelligence Suite

Microsoft

[1] Keystone Strategy interviews Oct 2015—Mar 2016.
[2] IDC-Canon Transformation Study, IDC, 2016
[3] Digital Transformation in the Age of the Customer, Forrester/Accenture, October 2015