

# Taking a Machine First™ Approach to Digital Transformation

## Abstract

To compete in the Business 4.0™ world, merely digitizing existing products and business processes is not enough. Instead, leaders should consider how they can reshape their business around digital technology—using a Machine First™ approach. Executives must look for ways to eliminate unnecessary manual work and free up employees to take on new roles. At the same time, they must reimagine their IT function, making its focus business-first, and its core capabilities ubiquitous, polymorphic, and secure.

In this article, we explain in more detail why companies should take a Machine First™ approach to digital transformation, how to do it, and the capabilities they will need (especially their IT function) to make it real.

## Reshaping the Business

Machine First™ is not about replacing every possible human worker with technologies that automate labor, but about using three key digital technologies—cloud computing, artificial intelligence and analytics—in every aspect of the business, in the products and services, in developing offerings, in how they support their customers, and more. By combining an agile approach to developing and continually improving products and processes, companies can become digital powerhouses with new data-fueled business offerings that delight customers.

This is how a growing number of companies have become leaders in their sectors—digital natives such as Amazon in ecommerce, Netflix in streaming movies, Uber in taxi services, and Peloton in fitness equipment. Companies founded before the rise of the Web too are taking this route to stay ahead of competition: CVS in pharmacies and health clinics; ABN AMRO in European financial services; Cummins in the truck engine market; and many others in industries that have rapidly been digitizing.

In this transformation, technologies such as automation, cloud computing, and the Internet of Things (IoT) devices enable companies to make unprecedented (and swift) changes to their business models. They also allow companies to take a Machine First™ approach for major improvements in key business processes—marketing and selling, product development, production and distribution, order fulfillment, talent management, and more.

- **Business models**—Companies are reimagining what they sell, to whom they sell it, and how they generate revenue. For example, the \$20-billion engine manufacturer Cummins digitally tracks the post-sale performance of its more than 120,000 engines to alert trucking customers on preventative maintenance.<sup>1,2</sup>
- **Core products and services**—These are shifting from analog alone to digital, or a combination of the two. For example, stationary bike maker Peloton achieved more than 100% annual revenue growth since its launch in 2012 not only by selling its \$1,995 bikes but also by offering a subscription (for \$20 a month) to live-streamed exercise classes. The product is no longer just the bike, but also the fitness exercises that come with it.<sup>3</sup>

- **Marketing and sales**—Advances in analytics enable companies to mine big data and unearth insights about the products and services that customers need, and how they use and react to them. Companies can use these findings to develop tailored promotions that are more likely to achieve sales goals. One major telecom company was able to reduce customer churn significantly by tracking customer account data and creating customized offerings to retain their most at-risk customers.
- **Production and distribution processes**—Multiple Business 4.0™ technologies are converging to reshape the supply chain. Improvements in analytics make it easier to track every item at every link in the chain, helping to prevent theft. 3D printing enables companies to move production all the way downstream, even to a customer's home. Synchronization among manufacturing, distribution, and order fulfillment makes it feasible for companies to produce customized products for individual consumers. For example, medicines are being tailored to an individual's specific genotype for better effectiveness.
- **Customer service**—AI technologies are helping contact center reps and field service technicians deliver higher-quality service, while smart, self-correcting, connected IoT products reduce the need for human interventions. Products ranging from cars to barbecue grills are being designed to fix themselves. Sophisticated, data-driven chatbots are handling routine customer inquiries, reducing the costs of call centers. Human customer service reps too can process calls better and faster when working with virtual agents.
- **R&D**—Data analytics can guide product development by identifying which innovations are likely to have the biggest impact. Remote analysis of product performance can give marketing managers valuable insights on ways to improve customer satisfaction.
- **Talent management**—AI can assist with human resource management hiring and development to engagement monitoring—to find, motivate, and retain the best employees. AI can be used to determine which roles are more important, and the effectiveness with which people in those roles operate.

- **Finance and accounting**—Analytics can help accelerate cash flows by automating accounts receivable and accounts payable while analyzing expenses to find ways to reduce costs. Instead of using technology for incremental improvements, a Machine First™ Delivery Model (MFDM™) helps rethink each element to maximize impact.

## How to Implement a Machine First™ Delivery Model

By combining an agile approach to developing and continually improving products and processes, companies can become digital powerhouses with new data-fueled business offerings that delight customers

The first step is to consider new business models to compete in a digital ecosystem that includes competition from major digital players such as Google and Facebook, as well as from hundreds of smaller competitors and startups.

Next, companies should look into introducing new products and services. The focus should be on using technology as a means to achieving desired outcomes, not as an end itself. For example, the retail industry is ultimately about delivering goods to customers in their homes. Amazon saw an opportunity to use its 2017 Whole Foods acquisition to enhance the value of its Alexa virtual assistant by allowing users to order groceries via Alexa.

This essentially amounts to a digital redefinition of an industry—and not just those whose products can be digitized 100% (think media, entertainment, and financial services). In the real estate sector, mobile app provider Zillow has moved from providing home price estimates to generating leads for real estate agents and offering mortgages by leveraging its extensive databases of 150 million visitors.<sup>4</sup>

After determining a new business model (as Zillow did for its business), the next step is to design and build the business processes to support those new products and services. The focus always should be on delivering a superior customer experience and business outcomes, or in other words, being Business First.

## Four Keys for IT Management

One of the biggest transitions for a company to make in a Machine First™ digital transformation is in the IT function. Specifically, the IT group will need to make four fundamental changes in the way it operates:

**Making data ubiquitous.** The first step is to identify all the data a company needs to run its business better. Much of this data reside with third parties in its ecosystem: suppliers, partners, customers, and others. Companies should seamlessly combine such ecosystem data with internal data, and then share real-time data with employees at all levels, when and where they need it. As a CIO of a large pharmaceutical company has said, the way to avoid “the finger-pointing between business and IT on data is by making data available to everyone.”<sup>5</sup>

But data alone is not sufficient. The IT function needs to provide analytics tools, as well as the insights throughout the company. For example, insights about why customers buy from a company is crucial to its marketers, sales force, R&D, and finance, among others.

**Embracing polymorphic analytics.** Polymorphic, which means having multiple forms, is about tailoring analytics applications to the needs of managers, function by function. For example, analytic tools for CFOs should focus on cash flow, margins, and risks, while those for chief operating officers should cover customer experience, customer satisfaction, and on-time delivery of orders. Then, executives should be trained to use the tools. If the skills are not developed, the insights are likely to go untapped.

**Maintaining a focus on customer needs.** As Machine First™ companies embrace advanced technologies, they must not lose track of their core mission: to satisfy internal and external customer needs and exceed their expectations. In all cases, an MFD™ should be Business-First; technology should be deployed first in the service of the business, not to make things easier for the IT function (although a lot of simplification needs to be done there too).

**Embedding security in every system.** Because MFD™ is based on the proper use of data, companies that adopt the approach must take extra care to make sure their data is protected from both external and internal threats.

The Business 4.0 era will be defined by the combination of human ingenuity with machine speed and power

## Machine First™ Does Not Mean Machine-Only

There are understandable concerns that digital technologies that enable automation will eliminate jobs. However, history suggests that new technologies create more jobs than they destroy. In the US, mechanization of farming did cause a 25% decline in farm-related jobs by 1890, but it did not lead to widespread unemployment as new jobs opened up in manufacturing, sales, and repair of farm equipment.

By 2030, McKinsey Global Institute predicts, automation could displace some 400 million workers worldwide, but it also says that there will be demand for up to 890 million new full-time equivalent positions.<sup>6</sup>

The Machine First™ approach is based on using digital technologies to enhance the work of people, not to displace them. Unlike in previous eras, where the brute force of steam engines replaced human muscle power, the Business 4.0 era will be defined by the combination of human ingenuity with machine speed and power.

### Barriers and Benefits

Every major technological change is met with resistance. The MFDM™ will be no different. Companies will need to invest in reskilling employees to work in collaboration with intelligent machines. The IT function must transition from a reactive to a proactive role to provide best-practice guidance to colleagues in all functional area. MFDM™ will be disruptive, but it will not—if correctly implemented—disrupt the large employee base in most industries. Instead, it will make their own work lives more human, not less.

The focus always should be on delivering a superior customer experience and business outcomes, or in other words, being Business First.

## About The Author

### PR Krishnan

PR Krishnan is the Executive Vice President & Global Head, Enterprise Intelligent Automation at TCS. In his current role, he defines how emerging and disruptive technologies such as artificial intelligence, smart automation, machine learning and cognitive thinking can solve complex business challenges. Over 35 years, he has worked with more than 600 TCS customers, helping them adopt transformative digital business models that use the latest advancements in data center, network infrastructure and cloud technologies. In his previous role at TCS, he was the Global Head of IT Infrastructure Services unit. Krishnan holds a master's degree in Instrumentation Engineering.

## References

- 1 Cummins press release, March 7, 2018. Accessed August 16, 2018. <https://www.cummins.com/news/2018/03/07/connected-diagnostics-receives-top-customer-service-honor>
- 2 Cummins press release, March 6, 2015. Accessed August 16, 2018. <https://www.cummins.com/news/2015/03/06/cummins-launches-connected-diagnosticstm>
- 3 The Wall Street Journal, Aug. 2, 2018. Accessed August 16, 2018. <https://www.wsj.com/articles/pelotons-financing-round-values-stationary-bike-maker-at-4-15-billion-1533255443?mod=searchresults&page=1&pos=1>
- 4 Geekwire, Feb. 8, 2018. Accessed Aug. 16, 2018. <https://www.geekwire.com/2018/zillow-group-hits-1b-annual-revenue-milestone-1st-time-following-record-quarterly-results/>
- 5 McKinsey & Co., "Advanced analytics: Nine insights from the C-Suite," accessed August 15, 2018, at <https://www.mckinsey.com/business-functions/mckinsey-analytics/ourinsights/advanced-analytics-nine-insights-from-the-c-suite>
- 6 "Jobs Lost, Jobs Gained: Workforce Transitions in a Time of Automation," McKinsey Global Institute, December 2017, accessed August 12, 2018 at <https://www.mckinsey.com/~media/McKinsey/Featured%20Insights/Future%20of%20Organizations/What%20the%20future%20of%20work%20will%20mean%20for%20jobs%20skills%20and%20wages/MGI-Jobs-Lost-Jobs-Gained-Report-December-6-2017.ashx>

## Contact

Visit the [Artificial Intelligence](#) page on [tcs.com](https://www.tcs.com)

Email: [EIA.Marketing@tcs.com](mailto:EIA.Marketing@tcs.com)

## Subscribe to TCS White Papers

TCS.com RSS: [http://www.tcs.com/rss\\_feeds/Pages/feed.aspx?f=w](http://www.tcs.com/rss_feeds/Pages/feed.aspx?f=w)

Feedburner: <http://feeds2.feedburner.com/tcswhitepapers>

## About Tata Consultancy Services Ltd (TCS)

Tata Consultancy Services is an IT services, consulting and business solutions organization that delivers real results to global business, ensuring a level of certainty no other firm can match. TCS offers a consulting-led, integrated portfolio of IT and IT-enabled infrastructure, engineering and assurance services. This is delivered through its unique Global Network Delivery Model™, recognized as the benchmark of excellence in software development. A part of the Tata Group, India's largest industrial conglomerate, TCS has a global footprint and is listed on the National Stock Exchange and Bombay Stock Exchange in India.

For more information, visit us at [www.tcs.com](http://www.tcs.com)

All content / information present here is the exclusive property of Tata Consultancy Services Limited (TCS). The content / information contained here is correct at the time of publishing. No material from here may be copied, modified, reproduced, republished, uploaded, transmitted, posted or distributed in any form without prior written permission from TCS. Unauthorized use of the content / information appearing here may violate copyright, trademark and other applicable laws, and could result in criminal or civil penalties.

Copyright © 2018 Tata Consultancy Services Limited