



# **DIGITAL WORKFORCE OF THE FUTURE: KEY DESIGN PRINCIPLES**

It is a fairly popular anecdote these days: Who is driving the digital agenda – is it the CEO, CIO or COVID-19? Satya Nadella, Chief Executive Officer of Microsoft, explained it succinctly when he said there had been two years' worth of digital transformation in two months.<sup>1</sup> COVID-19 can lay claim to accelerating the trend but not to the trend itself. Let me bring some perspective on this, based on our observations as a technology provider. We see two types of organizations. One already has a digital workforce in place. The other is struggling to define its digital strategy and to navigate digital adoption. A digital workforce is an inseparable, and an important, aspect of digital transformation. Organizations are following a bell curve when plotted against the adoption of digital workforce. The jury is however still out—How successful are the organizations on the left side of the bell curve?

A successful strategy can navigate deep into the future when it pivots around humans. The success of futuristic digital workers depends on an organization's ability to design them to deliver the experience of safety and equality. The human workforce also needs to establish the right expectations and foster collaboration.

Three important principles go into the strategy, design and implementation of a successful digital workforce. Let me explain:

## **1 KEEP THE PHYSICAL AND EMOTIONAL SAFETY OF HUMANS AT THE CENTER OF DESIGN**

In March 2019 there was an accident in Arizona. A woman riding her bicycle was killed by an SUV moving at 40 miles an hour. Loss of life is always tragic. But there are about 6,000 pedestrian deaths every year in the US alone because of accidents related to human driving – or mis-driving. This incident is worth mentioning because the SUV was not being driven by a human. It was an autonomous vehicle, driven by an ecosystem of intelligent sensors and algorithms.

Let me correlate this with a tale from New York, back in 1899. The speed limit in NY was 8 miles an hour on straight roads, and 4 miles an hour around the corners. Cars were more like a start-up eco system back then. The first speed ticket was issued for driving a car at 12 miles per hour. The driver was caught by the cop, who chased the car on a bicycle.

Later that year, in September, Henry Hale Bliss, a 69-year-old local real estate dealer was killed when an electric-powered taxicab struck him. Bliss died from injuries the next morning.

Naïve as this might sound today, back then, there was a big question to square blame for Bliss's death. Arthur Smith, the driver of the taxi cab, claimed that a large truck occupied the right side of the avenue, making him accidentally hit Bliss. He was arrested and charged with manslaughter but was acquitted because he had no malice, nor was he negligent.

But that could not justify, the possible "accident" that could kill many more in the days, weeks, and years to come. One newspaper ran an apt headline "The automobile has tasted blood."

The predicament is not new. The reaction to that 1899 pedestrian tragedy, or the tragedy with the self-driving SUV, should help us navigate arguments about safety and responsibility of new technologies towards society. Movies like A.I. Artificial Intelligence and Terminator (AI platform: Skynet) create enough anxiety amongst us about a digital workforce. The argument about the physical and social safety of the human workforce needs to be debated thoroughly. Organizations adopting a digital workforce would do well to address the existential quandary around losing human jobs at the hands of a digital workforce. New job roles should be defined. In 1899 a new job family called "driver" came into existence. In 2019 the self-driving car initiated its expiry. Similarly, to adopt a digital worker, new skills for existing roles and new roles will need to be defined. Digital workers will be part of the social fabric and we need to create an environment conducive for them today and to engage with them in a meaningful manner. We can't imagine today without cars, nor can we imagine tomorrow without digital workers.

## 2

### **ELIMINATE BIAS, MAKE DIGITAL WORKFORCE JUST AND EQUITABLE, BASED ON FUTURE SCENARIOS**

Algorithms are a set of well-defined steps. They get you from a set of inputs to a defined output. Algorithms work not only on our computers, but they are working everywhere and influencing our lives. Take the example of pressing a button in an elevator. Imagine how long you have to wait to get to the floor you want. The most simplistic thing would be to go to the floor requested by the person who pressed the button first, then the second and the third person in queue. However, this would be the most inefficient way of programming the elevator. The best way to do it is to aggregate and process all the inputs received during the course of time and make a decision to stop on the way – up or down – to pick / drop passengers. This way, everyone gets served what they ordered, but not exactly in the sequence they ordered. Some people in this order are able to jump the queue. This indicates that the algorithms, for something as simple as this, have a fair bit of value judgement baked into them.

While today we worry that modern systems suffer from “algorithmic bias”, let me correlate it to historic evidence. The first ever computer program was written in 1843 by Ada Lovelace, a mathematician by profession, musician by heart. Back then, the sailors needed to compute tables for navigating their ships, which sometimes went wrong, resulting in expensive mistakes. Ada was trying to build a steam-driven mathematical calculator, which would not commit a mistake. There aren’t many evidences of correctness of tables back then, but when her program was translated and run on modern computers, it wouldn’t give the same results. Eventually a bug was uncovered, that was correlated to her fondness of music notes, than for mathematic tables! No one can claim if it was intentional, but presumably there was a human bias in the first ever computer program!

I would be less wrong in saying algorithms today define everything, than I would be in saying they define nothing. Today, algorithms are complex and go much beyond simple decision making. The risk of programming them with a certain set of bias is inevitable. An example of this is provided by a prominent search engine that shows high paying job adverts to more men than women.

Organizations designing a digital workforce will need to bring inputs from diversity to the core of design. We must avoid training our future-ready digital workers on historic data. A design thinking lead approach to define the contours of the solution and neutrality of data to train the digital workforce is must. A digital recruiter needs to correlate skills in a profile to the ones required to perform, without bias towards gender or race. One also needs to remember that the circumstances can evolve, and what was expected yesterday may not be required tomorrow. As I mentioned, the evolution of job roles itself may have a profound impact on the job role of the digital worker. Encourage open discussions that help establish future scenarios and eliminate algorithmic bias. A more design centric approach will help in creating intelligent digital workers who will be more human, who will be for more humans and for a just society!

## 3

### **DEFINE WHAT YOU EXPECT AS AN OUTCOME AND RE-EMPHASIZE**

Organizations need to establish expectations. One needs to internalize that the change is gradual, leaving room for adjustment to the new normal.

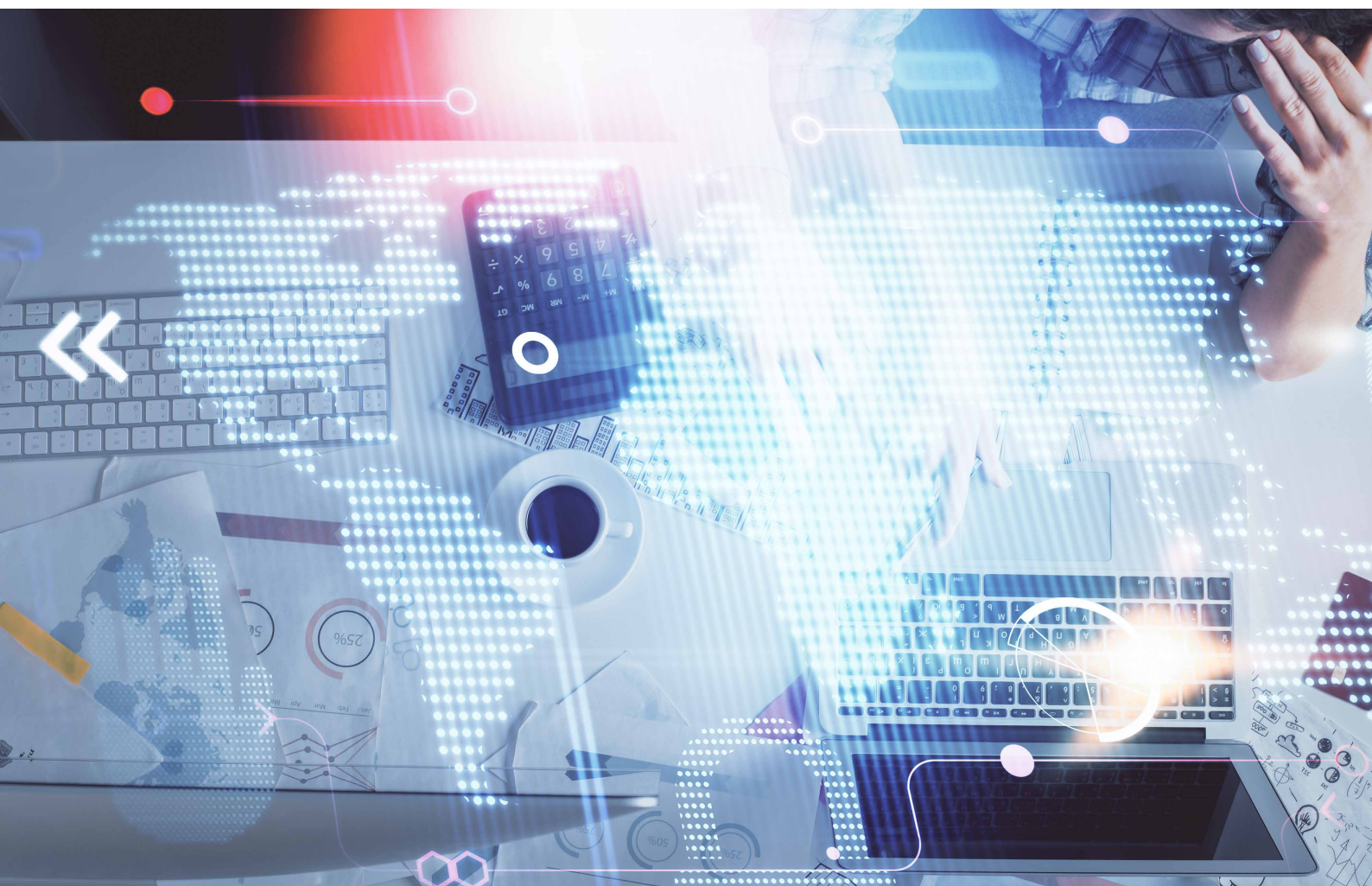
Way back in the 1850s a young American businessman, Cyrus Field, became obsessed with connecting the US with Britain. Some people thought the laying of the Trans-Atlantic cable might bring economic well-being and prosperity since people would be able to communicate and collaborate seamlessly. One could trade in both London and New York stock markets simultaneously, which could be a profitable proposition. However, the cable was 2,500 miles long and heavy to be accommodated on one ship. Field persuaded the US Navy and the British Navy to lend him a ship each. After a few unsuccessful attempts, in 1858, he finally connected America and Britain. The queen sent the first 99-word message in Morse Code to the American president, and that was truly the beginning of Trans-Atlantic communication. It was widely assumed that with people communicating and collaborating better, old hostilities and prejudices will no longer exist, economies will prosper and technology will swiftly advance. That wasn’t the outcome—and the utopian ideas about collaboration have also met with a darker reality.

In as much as the Internet is a tool to communicate and collaborate and to bring world order, it also brings with it geo-political conflict. In the new order, Facebook also claimed the new social communication protocol will help create a global community and bring harmony and prosperity. In reality, Facebook might polarize us and spread false information!

The point I am trying to make is that expectation from technology solutions need to be seen in the context of the problem statement. The digital worker is not the solution to all the process complexities. A digital workforce needs to be seen as augmenting human potential, to deliver a more human experience by the means of richer job roles. Organizations need to construct the digital workforce with a collaboration centric viewpoint.

Every strategy that organizations create must serve the emotional and physical needs of humans with uncompromising safety and equality at its core. It is no different for designing the digital workforce. The problem is that the digital workforce is based on data and algorithms where the danger of bias is omni-present. Using historic data magnifies the danger because of its inherent biases. Seeking neutrality of data is paramount to training a digital workforce that serves everyone equally; and is loved by everyone equally. Remember that the primary purpose of a digital worker is not to address complex processes (although that helps promote the business case!) but to enhance human potential. Think of it as a legally acceptable performance drug (with no side effects!) that makes us function better—and therefore feel better about ourselves. Determining outcomes—for example, managing complex processes versus providing colleagues a great workplace experience—helps fashion better digital workers with realistic and long-lasting outcomes.

The **digital workforce** is here to stay. We need to model **intelligent automation** / digital workers to meet the future requirements of society, organizations, and individuals. A more design centric approach will help in creating intelligent digital workers that will be more human, for more humans and for a just society!



## AUTHOR PROFILE



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Mayank has over 20 years of experience in business and consulting roles. During his consulting career, Mayank has led engagements across multiple domains and functional areas for many of the fortune companies. As a Digital Transformation evangelist, Mayank has created cutting edge capabilities and worked with global executives to create capabilities for their organizations. Mayank is a patent holder, and a automation enthusiast.

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