Essentials

The Fallacy of Technology

Digital disruption began more than two decades ago. It has reshaped how we communicate, travel, work, and even how we spend our free time. It is also far from over. Digitization played a key role in business survival during Covid-19. And, data science, artificial intelligence (AI), block chain, virtual and augmented reality are just hitting their stride…it won't be long before we all own an autonomous vehicle.

Everyone knows that it is happening. In a 2019 MIT/Sloan survey, 87% of respondents replied that these technologies would disrupt their industries to a great or moderate extent; only 3% believed technology is likely to have no effect on their industry (really?). 84% agreed or strongly agreed that becoming a digital business is important to their organization's success. Knowing digital disruption is happening and actually doing something about it are two entirely different things. Only a minority (44%) report their organization is doing enough to respond effectively.

A Robot Will Not Take Your Job

If you listen to the media hype, machines are taking over and putting people out of work and will only destroy more jobs as factories will run on auto pilot.

Technology advances have long taken toll on specific professions and industries. Concerns about technology replacing workers is not new. Over the past 200 years, mechanical looms replaced artisans, electric streetlights replaced lamplighters, cars replaced horses (no need for blacksmiths) and personal computers eliminated the need for typists.

Digitization is dramatically reducing transaction costs and spreading change faster than ever, however. Artificial intelligence (AI) puts more kinds of work at risk than past automation eras. AI potentially affects tasks that require cognitive skills found in middle skill jobs. A recent McKinsey Global Institute report suggests that most jobs (95%) will NOT be jeopardized over the next 5 years. But technology will change most jobs. A review of 2000 types of work activities in 800 occupations found 45% of work activities could be automated, affecting workers in a wide variety of jobs. MIT economics professor David Autor says this is just part of the evolution and improvement of working conditions.

Due to Polanyi's Paradox, the concept that humans know more than we can describe, we'll never be able to program a computer to mimic certain abilities. For example, while a computer can apply math to carry out routine calculations, humans must complement their robot "colleagues" with nonprogrammable capabilities such as their ability to be flexible and use common sense to solve unexpected problems. Replaceable jobs are mostly limited to physical labor in very structured and predictable environments. Not everything can or should be automated. The

human touch is not yet something that can be automated so jobs in healthcare and education are currently the most difficult to replace with machines.

We have seen automation in agriculture and manufacturing replace physically demanding and menial work, creating safer, less onerous working conditions. Many productivity gains from workforce automation have also increased demand for goods and services, increasing demand for new forms of labor and raise living standards. For example, as the number of ATMs quadrupled from 1980 to 2010, the number of bank employees also increased. ATMs reduced the number of cash-handling tasks but provided new data on customers and thus new opportunities for banks to be more involved in relationship banking with their customers. Tellers became sale representatives. Do workers like this type of shift in jobs? An Intel study of workers from the factory floor to the C-suite indicates that most workers welcome jobs that are more strategic and creative (they want to be part of something larger).

Automation and advanced monitoring can bring new levels of stability to operations, eliminating the need for workers to run machines, adjust machines or resolve small problems. When problems do occur, they are bigger, more complex and may never have been seen before. The risk of ignoring such problems, not getting to root cause or not understanding the consequences of resolution could be more hazardous than the original problem. A problem-solving approach that can quickly eliminate irrelevant data will get to root cause quicker. Organizations that develop problem-solving and critical thinking skills on the shop floor can tackle these complex problems and embed new capabilities into day-to-day operations. Everyone needs to be involved in improving their process every day.

We all have two jobs: 1) Do the job and 2) Improve the job.

– Ron Snee

The key asset to digital success then is data-savvy humans with process knowledge and critical thinking skills. The ability to solve problems, make-decisions using logic and data defy disruptions by changing technologies. Hone these skills and you will remain competitive as the world of work evolves.

The Gaps

Two gaps exist today, however that present serious challenges to achieving the digital factory:

1) Skills gap – workers need to be more data savvy (Statistical Thinking Essential) to understand collected data and comfortably use it for problem-solving and prediction.
2) Understanding gap – most workers have limited understanding of the complexity of technology. Instead, they have a “magical black box” view of technology.

Future workers will be comfortable with and expect data to drive decisions but will lack process knowledge. Current workers have process knowledge but lack data and digital knowledge. The key will be to bridge these two generations of workers to create the factory of the future.

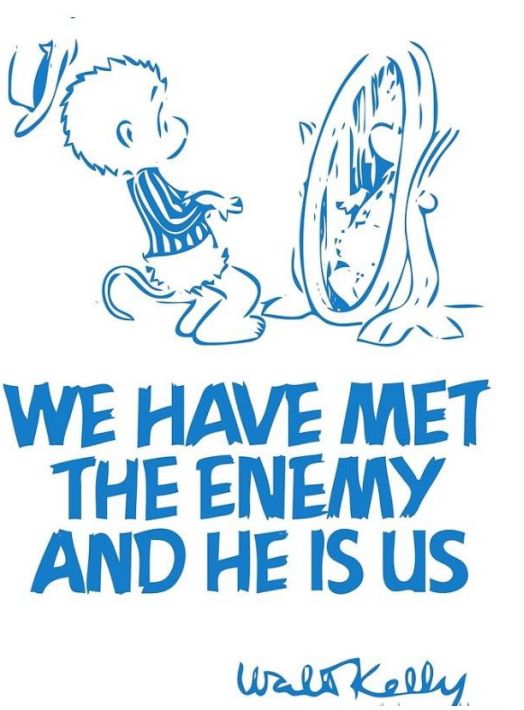
These gaps are well known. The purpose of knowing is to act on that knowledge. Yet, the gap between knowing and doing is 40%. To be fair, part of the challenge is the uncertainty of the rate and scope of change – predicting which industry, how much and when is near impossible, even for industry experts. And, organizations are trying to balance many competing priorities – it is hard enough to keep up with the daily challenges of running a business in today's environment (labor shortages, supply chain bottlenecks) without preparing for digital disruption.

So, how do we address this 'know-do' gap? As in any change effort, we start with awareness – focusing on the Why before the How. Why respond to digital disruption? Put simply, digitization changes what is possible for business – it opens new opportunities to better serve customers.

Traps/Threats

But what got you here will not get you there. Technology changes the competitive landscape – what your customers value may change as may your competitors for delivering that value. The factors of past success may not lead to future success. This is known as the competency trap. New processes and mindsets will be needed.

In addition, many senior leaders do not understand how quickly the landscape can change. By the time ample evidence appears, it may be too late especially if leaders also overestimate their availability to respond. Leaders need early warning signs. Leaders of organizations without a mechanism to spot potential disruption view digitization as a threat as opposed to an opportunity. The organization's communication and decision-making structures cannot move as quickly as needed – functions of the human performance system. When leaders are asked to describe the nature of the threat, the biggest threats fall under internal organizational issues-complacency and inflexible culture. The enemy is within the organization, not external.



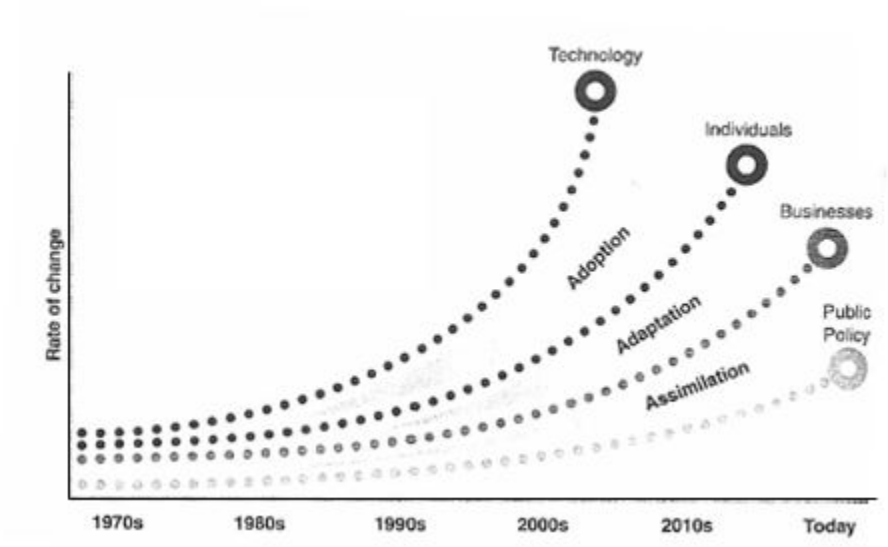
The cultural shifts required for a more flexible and responsive culture will likely create tensions with employees entrenched in the old ways of work – the competency trap exists at the individual as well as the corporate level. Change management will be key to helping everyone move forward. It will also require rethinking how the organization is structured – how teams are organized and how decisions are made. A model getting a lot of use in Silicon Valley is the 'core-periphery' model where the organization invests in and nurtures a small group of core employees while leveraging networks of external, on-demand talent (gig-workers). More organizations became comfortable with this model during Covid remote work and will likely continue it.

Another area that will need to change is the focus on productivity. Productivity is a double-edged sword. Efficiency is a diminishing returns game; the more cost effective and faster you become, the harder it is to get to the next level. But, if you focus on effectiveness, on impact, there is no limit. That's a huge mindset change for manufacturing leaders, most of whom grew into leadership through the quality/performance excellence/continuous improvement revolution of the 1990's and early 2000's.

Learning and adapting will be at the heart of digitization – for start-ups and established organizations. Start-ups are often seen as being more innovative and flexible while established organizations tend to focus on what they already know how to do – productivity and efficiency rather than learning, growth and innovation.

Therefore, the true challenges of the digital disruption facing organizations is people – the differing rates at which people, organizational structure and policy respond to technology change. There is an inherent mismatch between these rates:

- Technology happens faster than people can adapt
- Individuals adapt faster than organizations
- Organizations adjust quicker than legal and social institutions



from: Kane, George C, Anh Nguyen Phillips, Jonathan R. Copulsky and Garth R. Andrus. *The Technology Fallacy: How People are the Real Key to Digital Transformation*. Boston, MA: Massachusetts Institute of Technology, 2019, p. 30.

But you cannot have one adaption without the preceding adaptions.

Role of Leader

What is the role of the leader in all this? Is it to be the digital expert? the data analyst? Neither. Leaders who try to be the technology or data expert drown in the technology and data. On the other hand, leaders need to take a big picture view to understand the opportunities opened by digitization and to ask what data is needed at what level of quality (accuracy and precision) to make good decisions.

The organization with the biggest data will not be successful; they will drown in data. The organization with the smartest data has a better chance of success. It is the organization with the highest data quality that has the best chance of success. Therefore, it is critical for the leaders to focus on the right data at the right level of quality to answer the strategic questions in their context.

To take maximum benefit of this requires leaders to shift their thinking:

- from doing things right to doing the right things.
- from a focus on activities to a focus on results.
- from a focus on operations to a focus on the entire organization (engineering, marketing, sales, finance)
- from process control to process design
- from fix it when it breaks to condition-based maintenance
- from behavior of the process to behavior of the product at the customer; and
- from focus on technology to focus on people.

The leader must also understand that despite the rapid rate of digitization, the customer experience remains analog. The customer interface may be digital, but that interface serves to link the customer with someone that provides the actual service or product. Digital is part of the experience, but not the entire experience. For example, Uber and Airbnb are just digital interfaces to connect potential customers to drivers and homeowners who provide the real service. If you have used one of these applications, you know that the part of the experience that matters most to you is the actual service; the Uber app may allow you to quickly and easily obtain a ride home, but if the driver is a dangerous driver, you will not feel safe and may not use the app again in that neighborhood for fear of getting into an accident with that driver.

This takes quality to a new level. From TQC, Total Quality Control, which is focused on compliance/maintaining stability in the process, and beyond TQM, Total Quality Management, which is focused on planning, assurance, and improvement of quality systems to Total Quality Care, which is focused on the experience of all stakeholders (customer, employees, suppliers, and community) lie both digital and analog interactions with the product and process.

Leaders must craft a Vision, build Alignment, and champion Execution. See the Essentials Leadership white paper for more information on this model. It is hard work but achievable.

Transformation

All this suggests that digitization is more than just a change from status quo. It will require transformation. Transformation is more powerful than incremental change/improvement; it is strategic and involves people as well as processes and systems. It requires new mindsets and new behaviors – new leadership.

"Transformation literally means going beyond your form."

- Wayne Dyer

Digitization does not make the fundamentals of good leadership irrelevant. On the contrary, it heightens the need for leadership that creates congruence and results in organizational health.

The challenges will be to close the gap between how the organization currently operates and what is needed in the current environment while learning to do it repeatedly in response to a rapidly evolving environment. Your role as a leader in creating a healthy organization will be critical.

Automation is not our enemy. Our enemies are ignorance, indifference, and inertia. Automation can be the ally of our prosperity if we will just look ahead, if we will understand what is to come, and if we will set our course wisely after proper planning.

- James Manyika

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