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# The Rising TIDE: New Capabilities Quotients Are Required When You're Swimming In Data



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Intelligence and emotional intelligence quotients (IQ and EQ) are important components of psychological and organizational thinking. Organizations of all shapes and sizes use a variety of constructs to measure employees' skills, and IQ and EQ are go-to tools for measuring the intrinsic abilities of new hires and employees in hopes of building the best-performing organization.

While useful, these measures leave a huge gap when we are all swimming in data. In the data-rich environments that define business today, new constructs are needed to evaluate, measure, train and develop the quantitative thinking and problem-solving skills that will deliver the results needed to succeed. We refer to these two skills as data intelligence and thinking intelligence; the skills are measured by data intelligence quotient (DQ) and thinking quotient (TQ).

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In short, to manage the data wave that is engulfing all industries, companies must rely on TIDE (thinking intelligence, intelligence, data intelligence and emotional intelligence) quotients.

The gap in digital and thinking skills is particularly onerous in manufacturing, where a massive transformation is taking place due to data-intensive Industry 4.0 technologies. As I work with customers, the criticality of these skills in turning investments into results is crystal clear. DQ and TQ provide the ability to more accurately develop and measure employees' abilities to:

1. Interpret and act on data flows (including in real time).
2. Drive faster, better decision-making and problem-solving while working with colleagues.

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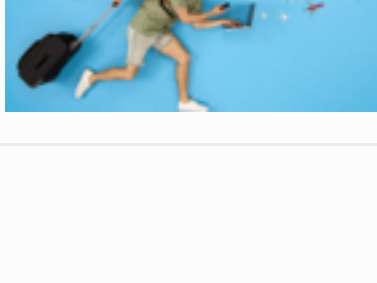
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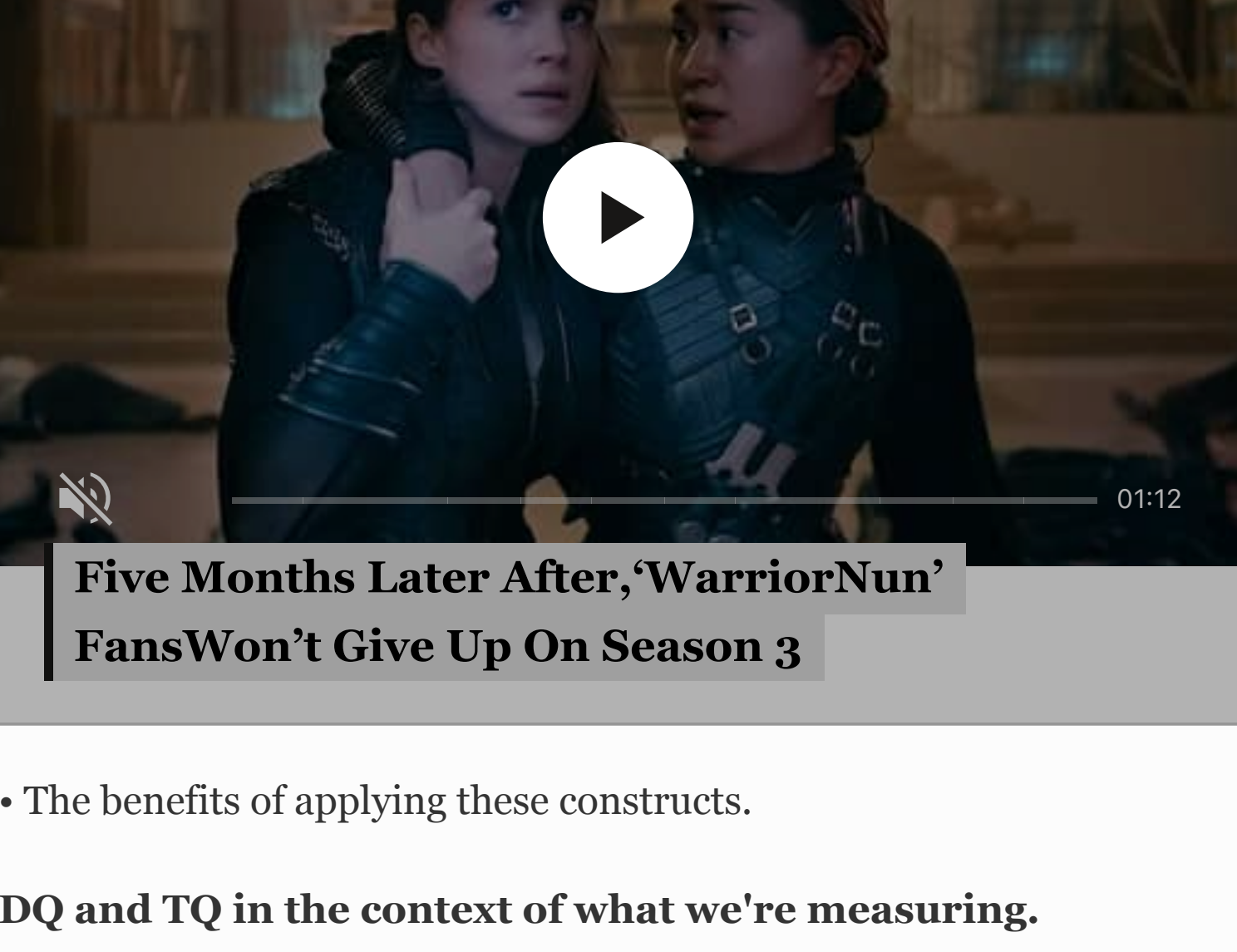
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In this post, I'll examine:

- What DQ and TQ are and why we need them.
- Examples of how each is applied.
- What organizations can do to foster the development and application of these skills.



- The benefits of applying these constructs.

## DQ and TQ in the context of what we're measuring.

Manufacturing execution systems, manufacturing resources planning systems and enterprise resource planning systems are all sources of raw data and environments where data is transformed into insights.

There are an increasing number of applications that focus on transforming — and then refining — data to create visual models for process monitoring, anomaly detection, root cause analysis and knowledge extraction.

All of this innovation is helpful in turning numbers into charts and graphs that can be used at a glance to affirm that all is well or to uncover an issue that needs to be addressed. However, it's utterly useless if the person looking at the visual representation cannot interpret what behaviors the data represents or articulate what the problem is and how it might be fixed.

In the simplest terms, the data intelligence quotients measure the first point: Does the person understand what is happening (e.g., what the problem is and what's causing it)? Similarly, the thinking intelligence quotient measures how well the person can deconstruct the problem, articulate a set of possible solutions, pick one and fix the problem using that approach.

These skills are becoming more important as robots take on more of the physical labor and associates need to focus on higher-order production issues.

## Building a team with the skills needed in the digital age.

My kids call me the lifelong student, as I firmly believe there is nothing that cannot be learned. (Well, not quite. I have tried twice, at different times, to learn music and am now convinced that I don't have a musical bone in my body.) It is my belief that the abilities associated with data intelligence and thinking intelligence are most certainly learnable.

For example, consider data intelligence. As an example, it's necessary to understand the characteristics of the data presented to know if the behavior is abnormal. The geek in me might suggest that's possible only if one is trained in scientific thinking (i.e., able to use first principles to understand its distribution and the associated mathematics). The pragmatist in me understands that is utopian. Practically, it is enough for one with a high DQ to know that not every dataset is a bell-shaped Gaussian. In fact, there are three distributions that matter in their context, and one must determine what the basic descriptive statistic for these distributions are and how to apply these measures to determine if the processes they are responsible for are within control bounds. With experience and training, these abilities can be acquired.

Once an abnormality has been identified, the process of issue resolution immediately kicks off. Is the issue impactful (frequency, repercussions of each occurrence)? If impactful, what is the best problem statement? Getting a crisp, accurate problem statement is half the solution. Some experimentation and problem-solving will follow before the results are implemented, tested and reported on. In the lean world, this process is referred to as "PDCA" (plan, do, check, act). In this process, one uses IQ, EQ and TQ — as solutions most often involve getting people to understand the issues and buy into solving them. It's less about the numbers and more about the domain knowledge, sleuthing, logic and people skills.

There is no doubt that some people have innate abilities in data literacy and critical thinking that will make it easier for them to adapt to data-rich environments. Ultimately, as with anything, immersion and practice are the keys to learning a new way of working.

## Why it matters.

The problem identification and solution process discussed above has moved from being infrequent to being recurrent thanks to Industry 4.0. Every line associate — not just team leaders — needs to interpret data as part of their *daily* job so that continuous improvement truly is continuous. This reality highlights the need for a generational shift in how and on what we train teams.

Manufacturers — or any business — will be set apart by their ability to incorporate DQ and TQ into the hiring and training frameworks.

When that happens, organizations will find they are propelled forward by:

1. Faster and more effective decision-making.
2. Greater creativity in problem-solving and innovation.
3. Stronger, more resilient operations.
4. Higher employee satisfaction and retention.

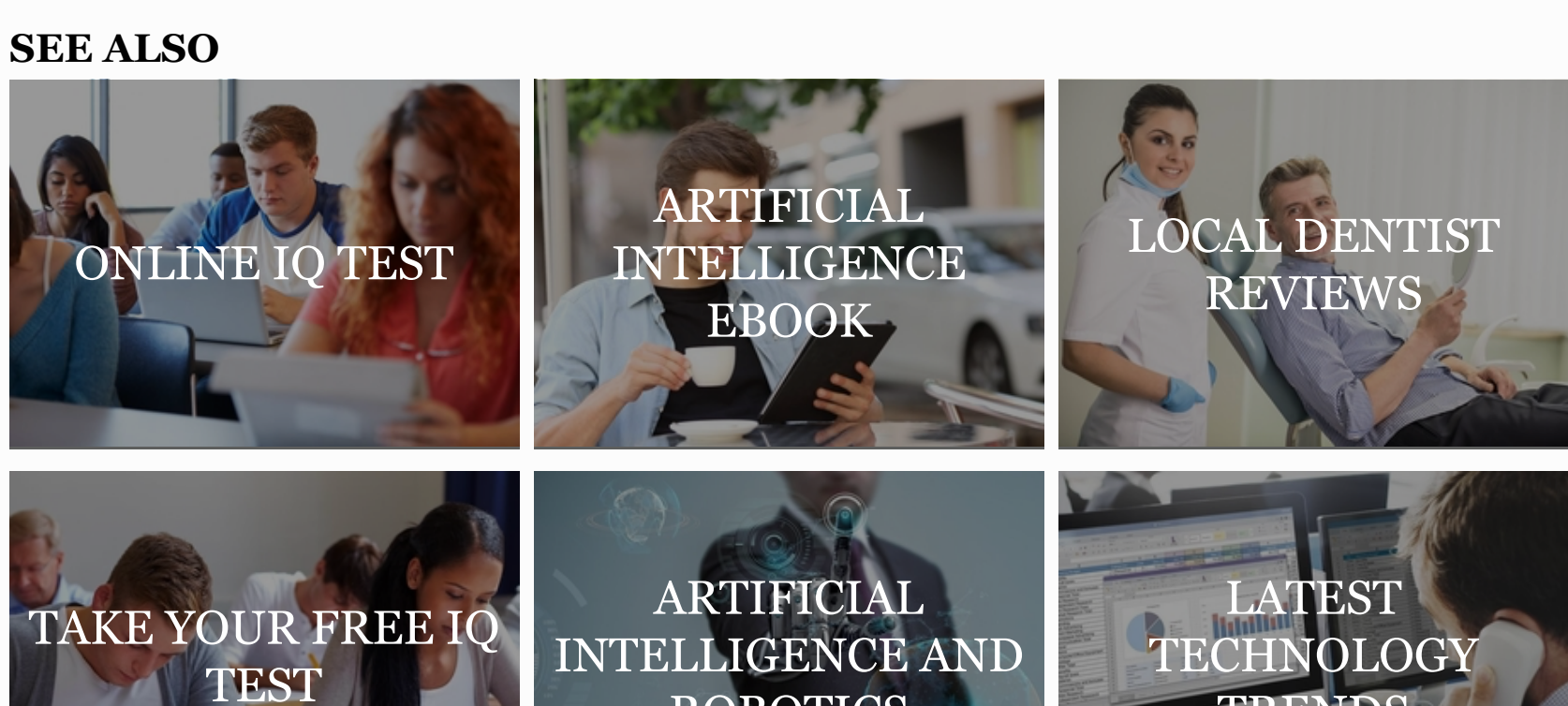
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