

INDUSTRY PAPER

Technology Has No Value?

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For the last decade, companies have been actively pursuing digitalization strategies trying to capture the promised value of big data and machine learning. This idea has since spawned new jobs, new departments, and even new companies all focused on this pursuit. While all of this mental horsepower has generated some great advances and new best practices, it also comes with a downside. Having so many people focusing on the same problem creates divergences and pockets of siloed thinking that can cause companies to lose focus on what they are really trying to accomplish, i.e., improving business performance.

Technology has no value. This simple truth, although unpopular with some and seemingly at odds with conventional thinking, should be the basis behind every digitalization strategy. The reason for this is that without this focus, it is easy to go chasing all of the latest and greatest technologies, spending millions of dollars in the process without making even the smallest positive impact on business performance. By always keeping the base concept that “technology has no value” in the forefront of our minds, we never lose sight of the fact that the value in any technology lies in its effective application to improve or even completely alter how an organization works.

For many companies, this translates into integrating digitalization strategies with operational excellence programs/practices. By doing this, you are ensuring that any new technology has a defined business purpose, as well as ensuring you have a vehicle for driving the value generation of the rollout. Similarly, this integration helps press the individuals focusing on operational excellence to look at new technologies and ask the question, “What if we could...?” as a way of potentially redefining our views on best or effective practices. I have found that the simple process of asking a few good “What if...” questions to be a very effective way of framing an overall Digital Operational Excellence strategy. For instance:



What if we could accurately predict abnormal events and equipment failures weeks or months in advance?

The holy grail of machine learning for the process industries for the last 20+ years has been early event/failure detection, and we are finally at a place where this once mythological capability has become a practical reality. However, many companies are slow in adopting this technology now that it is finally here for one simple reason—it is fundamentally disruptive to the business since they will have to completely rethink some of their core work processes.

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This leaves organizations wrestling with the fundamental question, “What do we do with the information?” For many in the industry, the answer to this question is to try to improve maintenance practices, thereby reducing costs and improving availability. However, of the core applications this is not necessarily the most interesting from a business perspective. What is at least, if not more, interesting from a business perspective is leveraging this advanced notice to influence production planning and scheduling, pulling forward scope from upcoming turnarounds, and reducing risk through more timely operational intervention.



What if we could dynamically optimize plant operations holistically?

While real-time optimizers and advanced process control technologies have been in play for a while, machine learning and advanced analytics capabilities are enabling a whole new generation of technology that is not only creating more dynamic optimization capabilities, but expanding the breadth of that optimization capability across the entire plant and soon across entire value chains. However, like the predictive analytics

capabilities described above, this level of dynamic automation brings with it some fundamental shifts in organizational functions, and in particular how operators interact with their plants, as well as how planners and schedulers approach their jobs.

The key here again lies in thinking through how these technologies will disrupt core workflows, change specific employee behaviors, and/or enable new capabilities. For instance, with automated controllers taking over even more management activities, how will operators actively maintain situational awareness, or will changes need to be made to how planning models are maintained and utilized to account for a higher and broader level of control? Or will we have to rethink how controllers are set up and maintained?



What if you could easily maintain and leverage dynamic situational awareness across an entire value chain?

Over the last decade, more and more companies have invested in improving and optimizing their overall value chains resulting in significant improvements in overall business performance. But the challenge is how to make this level of optimization dynamic in real time, accounting for short-term market opportunities and/or changes to production capacity based on operating conditions and mechanical availability. While there are

technologies under development that will allow for a degree of automation to this process in the future, there are technologies available today that allow teams to maintain the situational awareness needed to manage the value chain in a dynamic, real-time environment.

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The difficulty with this is simply the amount of information that needs to be sorted, prioritized, and analyzed to make this a reality. This is where visualization technology with embedded advanced analytics applications comes in. When set up correctly, data from multiple sources and databases can be brought together with the necessary analytics needed to make real-time decisions to optimize the overall value chain. However, as with other disruptive technologies, this type of dynamic value chain management comes with a number of organizational challenges. One of the most significant being the interface between a central value chain optimization and the various site operations and maintenance teams, and subsequently the interface with other technologies that enable a quick shift in optimization priorities in how the site is controlled.



What if you could make experiential knowledge and insights easily available where and when needed?

In recent years, the energy and chemical industries have been faced with a mass exodus of technical experience and expertise that simply is not being adequately backfilled. Even more concerning is that this experience loss is continuing, leaving the industry with a challenging situation that is exacerbated by increasing levels of automation. This makes it even more difficult for plant operations and engineering personnel to gain the

experience needed to effectively and efficiently manage abnormal operating conditions, start plants up or take them offline, effectively contribute to real-time operational optimization, etc.

While several of the technologies referenced above can help with this as they effectively replicate the insights that experience provides, they do not completely address this loss of experience and expertise. However, a combination of new technologies with the effective leveraging of existing dashboard technology along with some new approaches to rapid competency development methods creates a good solution to this. For example:

- The advanced and predictive analytics that is synonymous with Industry 4.0 effectively provides artificial experience and expertise through machine learning and advanced analytics.
- Well-designed and effectively layered dashboards with embedded experiential knowledge can help inexperienced operators and engineers manage a process with an effectiveness normally beyond their years of experience.
- Technology adoption should be driven by targeted competency development programs that drive the rapid development of specific capability sets and the embedding of experiential learning.

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There are numerous ways of approaching and tackling the challenge of adopting the underlying philosophy behind a digital transformation, and if done effectively, the payback can be immense. As discussed above, the key is to ensure you have a clear vision of what you are trying to accomplish in terms of improving or creating new organizational capabilities and it is grounded in your company's approach to operational excellence. With that in place, a strategy and the associated tactical plans can be built in a way that ensures not only alignment with your business needs, but that the resulting system is practical from both an implementation and ongoing maintenance point of view. Taking the time to ground your program on the principle that "technology has no value" will ensure that you get the greatest possible return on your investment in technology to fuel your competitive position now and in the future.

About the Author

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Kevin is the Founder and President of KES Global Advisors, LLC, and has spent the last 20 years driving business transformations for both his clients and with his own teams. His industry experience spans the globe, with direct work experience in over 40 countries across six continents.

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