Digital Manufacturing: Reasons to Not Dawdle

By: Conrad Leiva, VP of Product Strategy and Alliances

Industry analysts including McKinsey & Company [1] and the World Economic Forum [3] have documented the current undisputable momentum building up in industries including manufacturing towards a new digital enterprise reality. Has your organization embraced this enterprise digital transformation? Figure 1 shows the results from a recent survey by Industry Week [4] and it reveals that indeed most surveyed manufacturers have intent to move forward with a Digital Manufacturing initiative. However, when asked about the roadmap and timing of these efforts, manufacturers have significantly less enthusiastic answers.

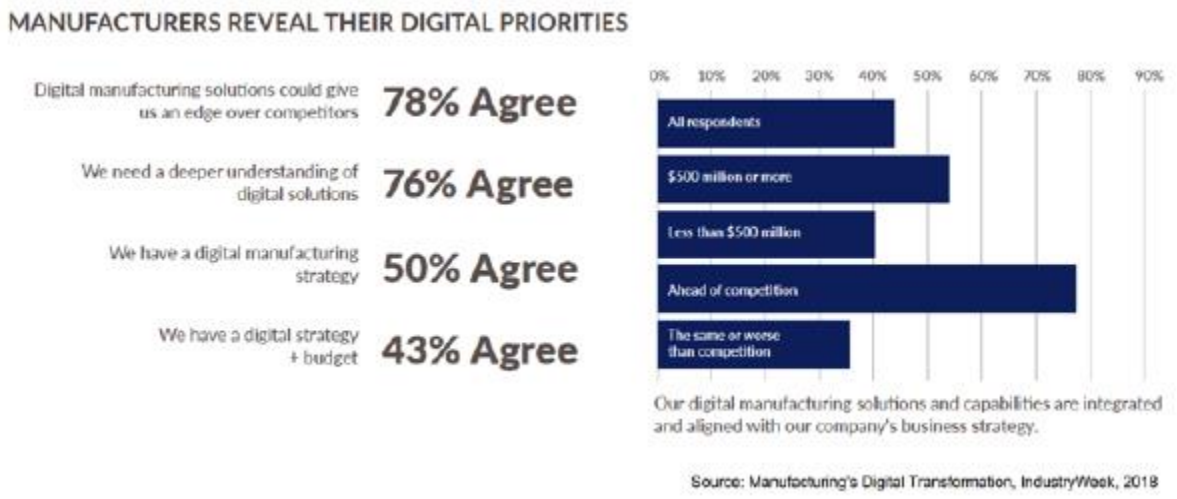

Figure 1. Manufacturers reveal their digital priorities

Manufacturers are often held back by the lack of a concrete roadmap, the perception of security risks, and the overwhelming number of approaches and technologies being talked about under the heading of Digital Manufacturing. Given the confusing landscape, is it better to wait a little

and wait for early adopters to incur the cost of experimentation with the first wave of adoption of these new processes and technologies?

This is a strategic question that each organization should ask itself—very soon; because the clock is ticking, and surveys indicate that competitors are moving forward. Each organization should evaluate the disruptive potential of Digital Manufacturing in their corner of the market. The executive team should strategically discuss questions like these:

- How will Digital Manufacturing disrupt our industry in the next five to ten years, and what new ecosystems and competitors will emerge?
- How would a digital enterprise and real-time data help our business achieve strategic goals? Where is the value for our company, and how can we maximize it?
- What new business value can we bring to our customers based on real-time data, higher levels of interaction, and the ability to deliver digital data with the product?
- What new capabilities, skills, and mind-sets will we need in our organization? How will we identify, recruit, and retain the right new talent?
- What should we pilot now to start capturing value and accelerate our journey? Do we understand how to establish an IT infrastructure that enables Digital Manufacturing?

As the intensity of global competitors developing new products, services and ecosystems raises the stakes, the pressure is on manufacturers to think differently about business models; cultivating additional revenue streams and finding novel ways to outflank the competition. The Digital Manufacturing strategy isn't just about incremental change or cost of savings, it's about innovating and incorporating innovation at a much higher pace than ever before.

Reasons to not delay the Digital Manufacturing initiative

Continuous improvement strategies that depend on Kaizen events and small incremental changes might have worked for organizations in the past few decades but may not work now to achieve the transformation required for Digital Manufacturing. At least not without a planned roadmap leading to a future state that establishes the required systems infrastructure to connect the enterprise and enable the business to participate in new manufacturing ecosystems with OEMs and peer suppliers.

#1. New entrants will disrupt markets

The Digital Manufacturing revolution is expected to disrupt markets and change the competitive landscape. Methods of measuring market share might require update and the organization might not detect market changes until it is too late. It is natural to maintain defensive focus against the same usual competitors while new ones might go unnoticed. New market entrants with innovative products and service offerings can start to take revenue away from the traditional market before the organization and industry analysts notice the changes. By then, the organization could have lost key contracts and lost market position.

#2. Innovation leaders will dominate redefined markets

History shows that companies leading disruption of markets enjoy an ongoing advantage in those markets for many years. Especially when the resulting market lowers costs and pricing for end customers. Competitors that implement Digital Manufacturing sooner can drive prices down due to their increased levels of efficiency and productivity. Your organization might be left with lower profit margins and less money to invest on catching up and implementing the required technology to quickly join the redefined market ecosystem. Will your old customer see you as a legacy supplier or see you as a supplier that is innovative and evolving with the market?

#3. New ecosystems will evolve quickly

A big part of the intent fueling the Digital Manufacturing revolution is the desire to create ecosystems tying multi-tier suppliers into new value chains that efficiently deliver products with high customer configurability, products with high traceability of components, and products sold as services to end customers—products that go beyond the physical unit with a digital footprint that travels along with the product during its lifecycle. If your organization is not ready to join these ecosystems as they are forming, it could be harder to join them later. Especially if competitors that join early establish a good reputation. New ecosystems will not want to introduce risk into processes and supply chains that are working. Opportunities might be limited to filling in gaps and replacing unreliable suppliers. Quality, reliability, speed, and the ability to participate in the chain of required data exchanges will be more critical than pricing to join new ecosystems focused on offering premium customer service. Your organization could soon be facing new ways of conducting business with old customers.

#4. Talented resources could become scarce

It is already difficult to acquire the required new talent into manufacturing companies. The manufacturing skills gap is well documented. [5] [6] A latecomer to Digital Manufacturing might find it even harder to find talented resources if the best resources were hired into the early adopters as job seekers perceived them to be the innovative leaders and better workplace choices.

#5. Evolution is a valid path

Creating a new division or acquiring a newer company are valid paths into Digital Manufacturing, but they are not the only paths. Organizations can evolve their practices with different approaches including piloting new techniques at new green-field programs and implementing technology that makes it practical to bridge older equipment at brown-field sites into newer Information Technology (IT) infrastructures and processes. When organizations implement digital transformation, they are not just enabling new business models, they are also making the old models work more efficiently by improving visibility, control, velocity, and customer service. These type of systems and process enhancements strengthen relations with existing customers and puts the organization in a better position to tackle new initiatives knowing there is a reliable revenue stream from an existing customer base.

#6. Internal shadow IT is probably not waiting

Departmental managers around your organization will continue to do process improvement projects and some will entail the development of apps to tackle specific problems within their area of responsibility. After all, it is easy these days for non-IT personnel to develop apps and deploy them on their own smart phones. Shadow IT is a symptom of an organization that is not updating IT systems and infrastructure fast enough to keep up with the internal needs for process improvement.

However, shadow IT efforts can create more problems than they solve and will not get the organization to the required Digital Manufacturing platform. There needs to be a plan in place orchestrated by the IT department providing guidance and governance on security, data models, standardized enterprise systems, and data exchange practices. Otherwise, we can end up with a mishmash of tools and apps that don’t play well together, need to be updated separately, and cannot be efficiently sustained in the long term. Shadow IT is not a game you

want to play in the high stakes arena of Digital Manufacturing. Even if the use of apps continues to be prevalent in the Digital Manufacturing landscape, the IT department should be empowered to architect them as part of an integrated enterprise systems landscape. The longer the organization waits to institutionalize Digital Manufacturing, the bigger the effort will be to move departments off their custom independent solutions and into enterprise integrated processes.

In Summary – Do not wait

Organizations should move forward without delay, define their end-state strategic goals, and their roadmap with progressive milestones toward their Digital Manufacturing vision. To advance the initiative effectively, it is important to get specific about the organization's digital transformation roadmap.

The industry is going through an exciting revolution and these are great times to be working in manufacturing. Companies with highly connected and adaptable systems will have a big advantage in future markets.