Optessa

Digital Transformation & Advanced Planning and Scheduling Software

How Can Advanced Planning and Scheduling Software Drive Digital Transformation in the Manufacturing Industry?

John Buglino | @john_buglino

EXECUTIVE SUMMARY

For today's technology-driven manufacturers, digital transformation is more than the "buzzword of the day." (1)

Since manufacturing leaders must juggle raw materials and parts shortages, disruptions due to labor disputes and other emergent issues, and the need to customize operations to local conditions, full digitization is critical for managing all these variables.

However, some companies are reluctant to introduce change into the equation, regardless of how messy the situation on the ground can get. This paper will demonstrate how advanced planning and scheduling software can help manufacturers overcome that reluctance and transform their operations.

CONTENTS

INTRODUCTION: WHAT DOES A DIGITAL TRANSFORMATION LOOK LIKE?

For some old-school manufacturers, digital transformation can be as simple as transferring all their paper records onto a digital spreadsheet, such as Microsoft Excel. Other companies who have already made the paper-to-digital switch might think about digital transformation as upgrading their Excel workflows to include macro functions to speed up each process. Eventually, they move on to add digital solutions for their growing communications needs.

As they feel pressure to further their digitization process to keep up with their competitors, they usually implement an enterprise resource planning (ERP) tool. That process, however, often takes from 12 to 18 months to bring all their data and processes under a single digital roof, thereby making the ERP tool the company's single source of truth.

Ideally, with an ERP, all disparate tools would disappear from their tech stack. However, seldom is the case. Many manufacturers at this level in their digital transformation still struggle with a cobbled-together set of tools and systems, clogging up their manufacturing and other processes.

As they upgrade the digitization process further, manufacturers often move on to a manufacturing execution system (MES) or a machine tracking system to view real-time shop floor data, helping them to make better decisions and track their teams' progress.

Eventually, manufacturers need to consider implementing an advanced planning and scheduling software (APS) solution. With this powerful tool, the company's leadership can take all their digital data, such as manual imports from Excel or other spreadsheets, real-time machine data from their MES, and the information from their ERP and truly optimize their results.

Although moving to an APS is the highest level of digital maturity for a manufacturer looking for actionable insights that lead to bottom-line results, many manufacturing executives balk at every step of their company's digital transformation.

This paper will discuss many of the roadblocks to implementing an enterprise-wide digital transformation. Even more importantly, it will offer several suggestions on how to overcome those roadblocks to drive optimum performance enterprise-wide.

THE CHALLENGE: ROADBLOCKS TO DIGITAL TRANSFORMATION

Ideally, a major manufacturer's leadership team should want to adopt the most efficient way to streamline their business processes. However, all too often, that's simply not the case, as McKinsey's Ewelina Gregolinska et al. point out. Many leading manufacturers, they say, "remain stuck in pilot purgatory, struggling to capture the full potential of their transformation efforts or deliver a satisfactory return on investment." (2)

A broad range of reasons undergird that hesitancy, not the least of which is the challenge of scaling the digitization process across the enterprise, the authors contend. In many cases, manufacturers achieve "impressive results" in a pilot program they implement at one factory but run into a logjam when they try to reproduce the same transformation in other sites.

Four other reasons, the authors point out, stand in the way of a successful digital transformation for many companies. These factors include:

Failing to adapt to local conditions:

All too many manufacturers use a cookie-cutter approach to digital transformation rather than one they customize to the situation on the ground at each site. Whether it's cultural differences or local materials availability, any successful digital transformation must include customization.

Letting silos stand in the way:

Many companies fail to involve all their teams in the digitization process, turning the process over to specialized teams. Successful transformations, on the other hand, involve all their teams in the process — from their executive leadership to site operations to their labor force.

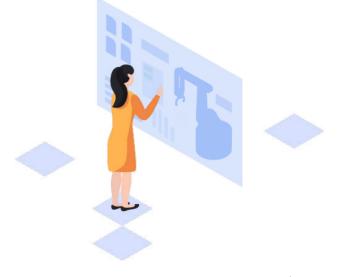## Waiting for perfection before implementation:

Some manufacturers overthink the process, insisting on a "full and deep upfront analysis of [the] entire network" before beginning the transformation. Instead, manufacturers should opt for "accurate-enough insights" through extrapolation, the McKinsey authors point out. Similarly, waiting for perfection in the new software's architecture delays the benefits digital transformation can bring. Instead, going ahead with a "proven and pragmatic minimal viable architecture" can get the transformation up to speed faster and just as efficiently.

Focusing on the technology rather than business goals:

Chalk it up to the "shiny new toy" syndrome, but some manufacturers' leadership teams jump on the latest technology fads rather than seeking a solution that best addresses their challenges, goals, and capabilities. Instead, company leaders need to outline their goals and assess solutions by their ability to provide maximum value.

Other barriers to digital transformation (, as Purdue University's Matthew Jones et al. point out (3), include incompatible infrastructure, the challenges that integrating systems bring with them, fears of disruption to the company's organizational structure, and the "low maturity levels" of a company's current technology.

None of these roadblocks that stand in the way of complete digital transformation, though, should deter manufacturers from moving forward with modernizing their planning and scheduling processes with APS software. In the next chapter, this paper will discuss how leading-edge APS solutions can help companies overcome these challenges.

THE SOLUTION: ENTERPRISE-WIDE CUSTOM INTEGRATION THROUGH ADVANCED PLANNING AND SCHEDULING

As Salesforce's Marc Benioff put it in a recent article, digital transformation must "begin and end with the customer." ([4](#))

That's superb advice. Since a manufacturing company's success hinges on how well its products and customer service meet its customers' expectations, it pays to put the customer's interests at the forefront of any action it takes, including digital transformation.

In fact, digital transformation — done right — will itself enhance the customer experience. Since digital transformation will change the company's processes "in a way that will enable better decision-making, game-changing efficiencies or a better customer experience with more personalization," as the Salesforce post points out, undergoing such a transformation will indeed deliver stellar experiences for its customers.

That's precisely what advanced planning and scheduling (APS) software can do for manufacturers. With an APS solution, a manufacturer can input pertinent information, like "orders, due dates, plant capacities, inventory levels, business rules, and constraints (including supply constraints),

to generate an optimal plan, including a schedule," as an earlier Optessa white paper pointed out ([5](#)).

As these variables change, the APS updates the schedule in near-real time, providing the manufacturer with all they need for complete customer transparency on order completion and estimated delivery dates.

That's not all. A leading-edge APS, such as Optessa, can even predict how these changes will likely affect your customers and their needs so that you can adjust either their expectations or your production process to best meet their needs, given the situation. It takes the panic out of the equation when production challenges arise.

However, can it overcome the barriers manufacturers experience during the digital transformation process?

With Optessa's customized approach, scaling the digitization process across the enterprise is easier since it can adapt to changing conditions in each factory site. Since it integrates all the data from all sources, such as spreadsheets, the MES, and the ERP, it eliminates the silos that block the way toward true digital transformation.

Since it integrates seamlessly with a manufacturer's existing software, it eliminates the need for perfectionists to ruminate over the ideal solution or worry about incompatible infrastructure. Right out of the box, it adapts to every possible situation, providing manufacturers with noticeable results from the start.

For that reason, manufacturers who use an APS need not focus on the technology itself — or its maturity level. Rather, they only need to concern themselves with meeting their customers' needs and reaching their business goals.

Therefore, an APS doesn't disrupt the organizational structure. It only makes the organization function more efficiently.

However, as The University of Osnabrück's Kirsten Liere-Netheler et al. ([6](#)) advise, while an intuitive APS solution can make digitization go more smoothly, it's always essential to "shape a mature discussion about [the] hopes and fears associated with the [perceived] disruptive change."

Without the cross-organizational communication that needs to occur with any technological upgrade, it will be more challenging for manufacturers to "sell" their teams on the change. For that reason, it's a clear advantage for your APS provider to work with you to overcome any hurdles manufacturers face during the transition to fully digitized operations across the enterprise — and even afterward.

Optessa's knowledgeable team does just that ([7](#)).

From soothing the concerns of digitization holdouts to helping manufacturers solve tough challenges down the road, the Optessa team will help drive digital transformation success — and with it, a slew of satisfied customers.

CONCLUSION

Overcoming the barriers to a complete digital transformation can challenge even the world's foremost manufacturers. With a customized advanced planning and scheduling solution to pull all their operations together, manufacturing leadership teams will have an easier road to overcome those barriers.

To discover how Optessa's leading-edge APS software can help manufacturers overcome any roadblocks they face along the road to digital transformation, contact the Optessa team today.
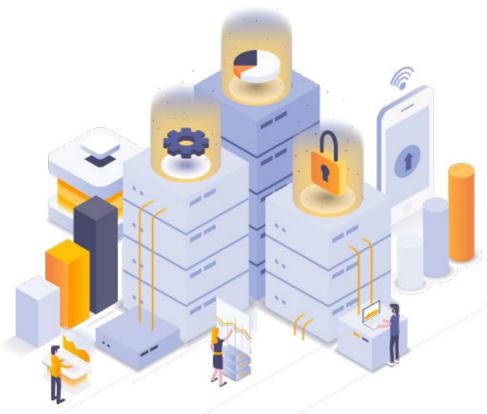
FOR MORE INFORMATION

Optessa (https://www.optessa.com/) provides world-class manufacturers worldwide with the only planning, sequencing, and scheduling software that mathematically guarantees results. Thanks to its patented algorithms, Optessa's advanced planning and scheduling (APS) software adapts to all manufacturing and logistics challenges with no extra coding required. With a full range of configurations for its clients' unique needs, it's the go-to solution for four of the six largest auto OEMs in the world, as well as industry leaders in a broad range of manufacturing, shipping, and logistics verticals.

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ADDITIONAL RESOURCES

1. https://dl.acm.org/doi/fullHtml/10.1145/3329488/3331171

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For more information, please contact johnb@optessa.com