

# Accelerate Digital Transformation by Connecting Your Manufacturing and Supply Chain Data

Six steps to unlocking new levels of  
operational excellence and business value



Digital transformation is the integration of digital technologies into all areas of a business resulting in fundamental changes in how an organization operates and delivers increasing value to customers—a difficult task to navigate for many organizations. But digital transformation is not as far out and can pay off much more quickly than many think.

With new digital technologies and production models emerging to drive greater performance across the manufacturing and supply chain spectrum, organizations can increase earnings and customer value by unlocking the potential of the investments already made in the physical and digital value streams. Organizations can make the leap to digital transformation without making a huge investment by connecting data across the digital value stream to drive improvements in the physical value stream.

A recent Harvard Business School (HBS) survey shows a clear performance gap between organizations that embrace digital transformation and those that don't. The study was conducted across a sample of 344 organizations and showed digital leaders attain 49% better gross margins, 45% better earnings and 57% higher net income than laggards.<sup>1</sup>

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HBS also discovered that digital leaders attain these results without spending much more than laggards on IT as a percentage of revenue (see Table 1). In fact, by making small incremental investments to connect their data and implement near-real-time alerts, digital leaders are driving continuous improvement at all levels of the organization. By connecting the data in this way, leaders can utilize predictive analytics and alerts to prevent the variances that impact manufacturing and the supply chain before they even happen.

Performance Metric (3-year average)	Digital Laggards (bottom 25%)	Digital Leaders (top 25%)	% Gap
Gross Margin	37%	55%	49%
Earnings	11%	16%	45%
Net Income	7%	11%	57%
IT Spend as % of Revenue	3.2%	3.5%	9%

**Table 1.** Results from an HBS study that focused on upper-midmarket and enterprise organizations, with a median company size of over 6,000 employees and \$3.4 billion in company revenue.

<sup>1</sup>Iansiti, Marco and Lakhani, Karim. The Digital Business Divide - Analyzing the Operating Impact of Digital Transformation. Harvard Business School. September 2016.

# How to Become a Digital Leader

Driving continuous improvement of real-time metrics and predictive analytics with connected data is the key differentiator for digital leaders. HBS research found that digital leaders are 250% more likely to leverage connected real-time data and analytics to drive business performance than laggards.

Without connected information across systems and functions, it's not possible to eliminate variances from the physical value stream. Today, when we have problems in production delivery, we typically talk to the production scheduler. When we have a supplier quality issue, we go to procurement. And when something breaks down, we contact maintenance. That's anything but connected.

In a digitally connected, real-time world, the machine learning that supports predictive analytics can alert employees before a variance from plan ever happens. For example, we can now forecast when and where delivery issues will take place in the end-to-end supply chain. We can also predict when supplier quality issues will occur and even determine when an asset will fail with a great deal of certainty.

This is exciting news for manufacturers focused on Lean Six Sigma and waste removal at the physical value chain level. Instead of performing after-the-fact root cause analysis, organizations can focus on predicting and controlling problems and variances before they happen. This is the next logical step to classical Lean Six Sigma, where variances are measured and countered after they occur.

It's compelling to see the progress that leaders in digital manufacturing are making to drive operational and P&L (profit and loss) improvements through a connected value stream approach. Digital manufacturers are continuously looking for ways to improve customer processes through connected data, artificial intelligence and machine learning to alert them before issues happen in the supply chain and manufacturing operations. This enables a new way of driving continuous improvement as the focus shifts to predictive analytics to prevent variances from plan ever happening.



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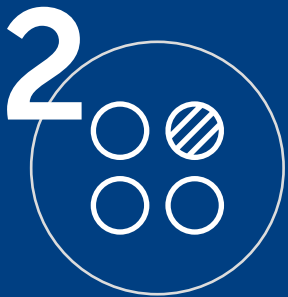


# Six Steps to Drive More Value Across Your Manufacturing and Supply Chain



## 1 Set clear goals to create a connected, near real-time operating system.

Focus digital transformation efforts on connecting the physical and digital value streams to create a near real-time operating system for all levels of the organization. The objective is to have the digital value stream provide alerts and predictive analytics to prevent variances in the physical value stream. Shift the focus to continuous improvement of predictive analytics and alerts, so physical variances don't happen—which is much different than waiting until a variance occurs and then trying to find how to best control or alleviate the issue.



## 2 Identify areas of variation across the physical value stream that can be improved with better data and real-time analytics.

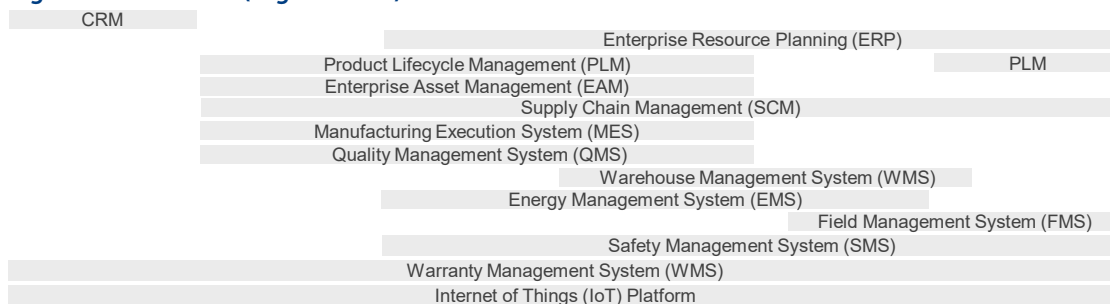
In many cases, this starts with performing a "proof of value" in areas of capacity loss that can be monetized without question, such as unplanned asset downtime, asset rate losses and quality losses. Implementing predictive analytics in these areas results in solutions such as predictive maintenance, predictive quality and dynamic scheduling, which predicts and prevents material flow constraints at the line level as well as at the supply chain level (see Figure 1).

### Physical Value Stream



### Physical Value Stream

### Digital Value Stream (Digital Stack)



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### Digital Value Stream



### Value Created by Connecting Data and Leveraging AI for Predictive Analytics



### New Value Created

Figure 1. Digital Transformation & New Value Drivers for Manufacturing and Supply Chain

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### Select proof-of-value use cases that can show wins and create organizational engagement by integrating value streams at all levels of the organization.

Start with process-level personas such as operators, supervisors, production and maintenance to make it work at the ground level first. Your initial proof of values for capacity losses complements this process by engaging multiple personas and creating a culture that embraces digital transformation in manufacturing and supply chain.

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### Create an executive advisory that is engaged in sponsoring the digital journey.

In a large organization, these advisors must include leadership across sites and geographies. Even if digital implementations are happening at different rates, it's essential to create a learning and sharing environment.

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### Focus on delivering results.

If digital solutions don't solve business issues and drive real value, they will fail. Remember, the focus in the digital world is to connect data and use it in real time to provide alerts that prevent variances from happening in the physical value stream. Therefore, demonstrate the business impact of connecting organizational data and show clear ROI from using real-time predictive analytics and alerts to prevent operational variances. Focus on a minimum return of 3:1 on your investment for digital transformation strategies (see Figure 2).

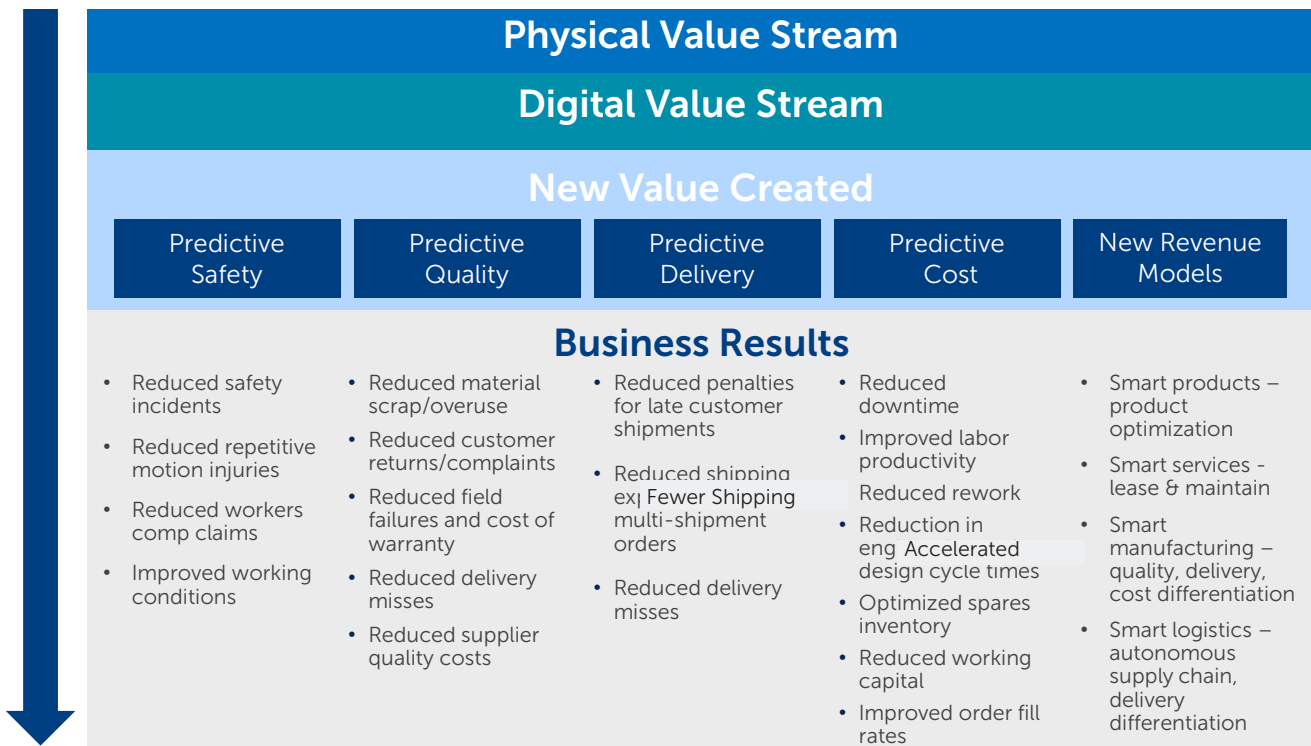


Figure 2. Focus on Delivering Business Results



### **Learn from organizations that have embraced digital transformation and are driving real results.**

Get advice from other organizations that have experience with the connected data journey. Creating strategic relationships with companies that have digitally transformed their own operations and who are willing to share their know-how will accelerate your organization's journey to unlocking more organizational value.

## Don't Let Small Investments Stand in the Way of Big Transformation

For many organizations, the big investments have already been made over the last two decades in the digital enterprise stack and process automation. Many of the sensors and information needed to start the digital transformation journey already exist, they just need to be integrated to create real-time metrics and analytics. Even if your organization is operating on 1980's PLCs and not on the latest version of every platform, you can still connect the data and create value through predictive analytics.

In 2017, Gartner reported that 2,600 CIOs had devoted 18% of their budgets to digital transformation, a figure Gartner believes will increase to 28% by 2018.<sup>2</sup> This means that more and more organizations are accelerating their digital commitment. But the winners will be those that make the smart investments to connect their data.

At Hitachi, we remain steadfast champions of digital transformation and continue to digitally transform our own companies. We share our experiences with clients to help them on their path to digital transformation. Our message is simple: getting started with digital transformation doesn't have to be complex—start connecting your organization's data to unlock new levels of operational excellence and business value across your manufacturing and supply chain operations.

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<sup>2</sup> 2017 Gartner CIO Agenda Survey.

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## About Hitachi Consulting

Hitachi Consulting is the global solutions and professional services organization within Hitachi Ltd., a global innovation leader in industrial and information technology solutions and an early pioneer of the Internet of Things. Hitachi Consulting is a business integrator for the IoT era and a catalyst for digital transformation. Using our deep domain knowledge, we collaborate with clients to help them innovate faster, maximize operational efficiency and realize measurable, sustainable business and societal value. As a consulting-led solutions company, we can help you leverage data as a strategic asset to drive competitive differentiation, customer loyalty and growth.