

# The Path to Operational Excellence

Harness the power of IoT to reach entirely  
new levels of operational efficiency





The well has run dry. After decades of applying methodologies such as Lean and Six Sigma®, many organizations are running out of room to improve through those means. That is not to say they cannot perform processes more efficiently in the future. Far from it. But to do so, they will have to address the digital imperative, especially the Internet of Things (IoT), in their operations. Those that have already done so successfully are realizing significant value from operational excellence enabled by those technologies; the resulting savings can be invested back into initiatives for even greater efficiency gains and competitive differentiation.

Gartner estimates that 8.4 billion connected things will be in use worldwide in 2017, up 31 percent from 2016, and that the number will reach 20.4 billion by 2020. Total spending on endpoints and services will reach almost \$2 trillion in 2017. Properly deployed, governed, and scaled across the organization, such investments can make a vital contribution to operational excellence initiatives, especially in asset-heavy industries such as transportation, manufacturing, and health care. For example, *Baseline Magazine* recently reported that 55 percent of the IoT adopters in the Americas grew their revenue by more than 20 percent following an IoT implementation.

Many organizations, however, have far to go before they can achieve similarly impressive results. In many cases, they fall short because they struggle to realize value or capture efficiency gains from their IoT-enabled assets. For example, according to a recent survey by Digital Analytics Association Germany, although 60 percent of respondents say they are good or excellent at collecting IoT sensor data from their assets, only 32 percent say they are good or excellent at extracting insights from that data.

Underlying these challenges are larger organizational issues. Many established companies struggle to uproot and replace entrenched legacy processes and attitudes that impede understanding and adoption of advanced digital technologies. Functions and business units that need to work together to drive innovative ways of working and thinking across the organization remain stubbornly within their silos. Senior leadership's commitment to true digital transformation is sometimes halfhearted at best, sapping the organization of the urgency that fuels success.

The talent and skills needed to implement digital strategies and business models are in extremely short supply. The business cases to justify the investment and effort needed to achieve digital transformation can be unpersuasive and the time to results too long.

## Fuel the growing power of IoT

There is a way past these frustrations. The organizations that are successful with digital transformation take a holistic approach that encompasses digital technology, processes, and people to bring about sustainable change. They apply key mindsets, behaviors, and approaches that enable them to achieve step changes in operational excellence as a result. And by leveraging IoT and building strong analytics capabilities, they are ready not just to achieve significant efficiency gains but also to create entirely new business models.

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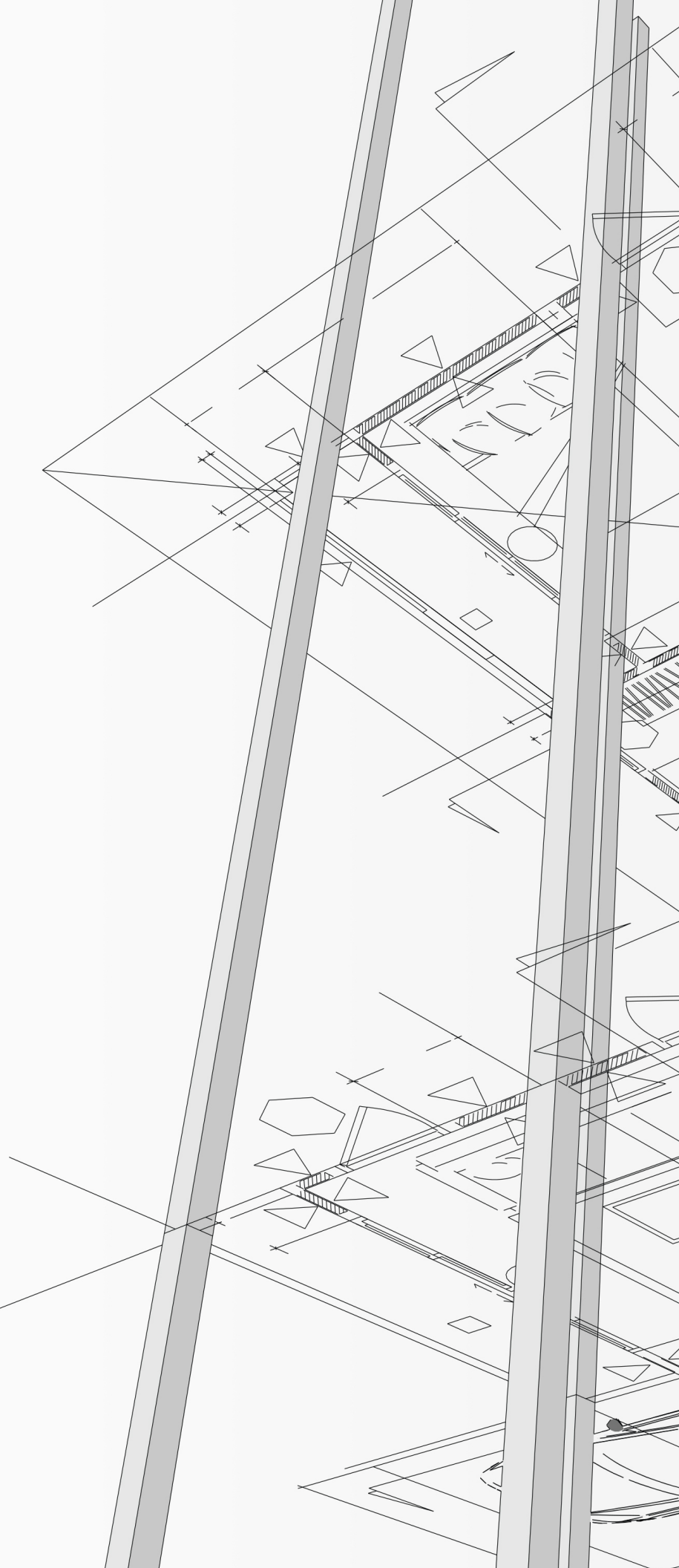
| Baseline Magazine

Very few of these leading organizations try to go it alone. Instead, they find the right digital transformation leader to guide them on their digital journey. With that guidance, they can meet the challenges they face, build the business cases to support the needed investment, align the entire organization around the initiative, and map the stages of digital transformation. The guide can be instrumental in encouraging the organization to take a program-based approach to implementation and deploying the systems integration capabilities needed to bridge the chasm between the IT and operational functions. Last and most important, the ideal digital transformation partner has in-depth functional and domain understanding, coupled with strong expertise in analytics, to achieve the transformation objectives.

# Navigate a path through the IoT maze

Genuine transformation does not come without a struggle. This is especially true at established companies with entrenched processes and mindsets. As suggested above, the IT and operational functions at many companies are often at loggerheads, with widely varying views of their roles and the overall business itself. They face a sizable change management effort to unify and align what are often heavily siloed functions. Recently, Hitachi and Forbes Insights surveyed 573 C-level executives from various industries around the world on [How to Win at Digital Transformation](#). Among the respondents, IT and line-of-business (LOB) executives often don't see eye to eye about who designs and implements digital transformation. While 54 percent of IT respondents think their function is most involved in strategy development, 56 percent of LOB executives believe a dedicated cross-functional team should be most involved. Compounding the difficulty are the evolving technology landscape, the proliferation of technology standards, persistent talent shortages, and ever-present and ever-increasing security concerns. No wonder that by some estimates, as many as 60 percent of IoT projects stall out at the proof-of-concept stage.

There is a way to break through the many roadblocks. It begins with a change in mindset. Rather than view IoT as an end in itself, organizations making the greatest strides with IoT view the technology as a means to operational excellence. In other words, the goal is not to fit all their assets with sensors, but to attain greater efficiency. They have clear roadmaps to business transformation, and they work with experienced guides that can show them what success looks like in a wide variety of industrial environments. They're not content with incremental gains in efficiency, striving instead for transformational ones, and they are sourcing the skills, capabilities, and talent needed to achieve them. As leaders of organizations with deeply ingrained legacy systems and processes, they recognize the need for cultural change and have launched the concerted change management programs needed to bring it about. Consider these examples:







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- One manufacturing company employs IoT-enabled dynamic scheduling in a high-mix, make-to-order production operation. By aggregating customer order data and operational data, bottlenecks can now be predicted and avoided. As a result, it has improved lead times by 50 percent, and both productivity and flexibility have soared at the company's plants.
- Through digitization of the manufacturing process, another manufacturer significantly reduced quality defects. Using image analytics, standard operating procedures (SOP) were defined for its manufacturing operation and algorithms were implemented to detect any deviations from the SOP. The system enabled the manufacturer to develop processes that tightly coordinated man, machine, material, and method (the 4 Ms), which made possible the early identification and elimination of potential quality defects and improved overall quality.
- New models are being introduced to train novice workers. An air conditioner manufacturer leveraged advanced image analytics and data science to map and schematize the skills and best practices of experienced workers, using its learnings to build standardized models of expert worker performance.

# Spark ideas to action

Operational excellence is within the reach of nearly every organization. As industrial companies undertake their own transformations, there are a few things to keep in mind—and do—to speed their journey.



## 1 Keep the focus on an end goal.

IoT is a means to that end. Launch the project only if it's feasible and delivers an acceptable return on investment (which is often 3X or more). Build the business justification for each use case, factoring in the value of the data it generates.



## 2 Select a digital transformation partner.

Look for an organization with deep experience in IT, OT, and systems integration, as well as deep domain expertise. Doing so can help minimize upfront costs by collaborating to co-create a tailored solution rather than off-the-shelf products and services.



## 3 Start at both ends of the digital spectrum.

Your manufacturing facilities might include both highly automated plants and others reliant on manual processes and paper. Implement full IoT at the automated plant and digitize processes and eliminate non-value-added activities at the manual plant.



## 4 Don't settle for the smaller, incremental results.

Simply put, changing market dynamics, emerging competitors, unplanned costs from traditional maintenance practices, and increased environmental compliance standards require digital transformation. All of these require more nimble, efficient, and sustainable operations that stretch across the entire organization.



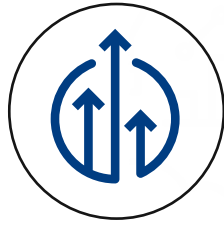
## 5 Take a strategic approach to how the transformation should proceed.

Take into account the organization's culture, digital maturity, talent, and capabilities. Some organizations have had success with an iterative approach, starting small with discrete pilot projects designed to build momentum and drive real value. Other companies, though, are skeptical of that approach, reasoning that if a pilot fails to gain traction or win sustained, visible support from senior leaders, the overall initiative will stall. They therefore aim very high from the outset with ambitious transformations that leave no area of the business untouched. Neither approach is a surefire winner or loser. Choose the path that best fits your organization's unique circumstances.



# Achieve business results with IoT

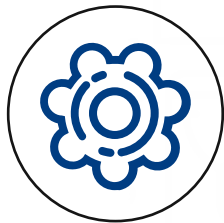
Turning a long-term digital vision into reality doesn't happen overnight. But the rewards for an aggressive operational excellence program, enabled by IoT, are considerable:



**Improved competitive positioning, even against new, digital-native rivals**



**Agile response to rapid, unpredictable change in the market**



**Innovative business models for a future-proofed organization**

Organizations can achieve efficiency gains today that would have been unimaginable a generation ago. For company leaders to keep their eyes on the prize of operational excellence, they will need to team with someone that has the experience to accelerate and make the vision real. Those who carefully consider where to start, build a roadmap to get there, and reach beyond incremental improvements in ways that are unique and appropriate for the organization will thrive in the digital era.

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Rajesh heads the Global Solutions Management function and is the Global Lead for the Hitachi Predictive Maintenance solution at Hitachi Consulting. He focuses on creating differentiated world-class solutions leveraging the best capabilities of Hitachi across digital technologies. Under his leadership, Hitachi Consulting has developed unique, market-facing solutions addressing key digital transformation opportunities.

Rajesh's background includes two decades of manufacturing industry experience across ERP programs, business consulting and IoT/analytics-led digital transformation engagements. He holds a Bachelor of Electrical Engineering degree and an MBA in Marketing and Finance. He also holds multiple professional certifications including CSCP and SAP certifications. Rajesh speaks at multiple industry and professional forums and authors blogs on various technology topics.

## 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.