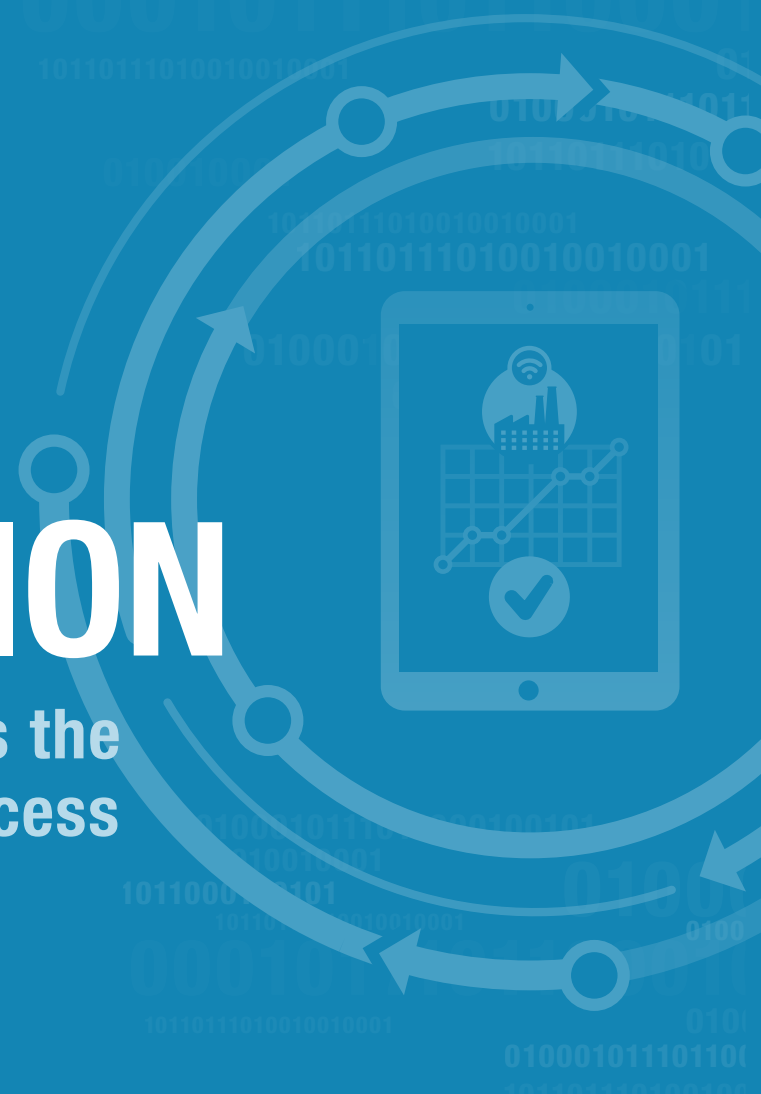


UNDERSTANDING INDUSTRIAL TRANSFORMATION TODAY

Digital Readiness is the
Foundation for Success



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SECTION 1

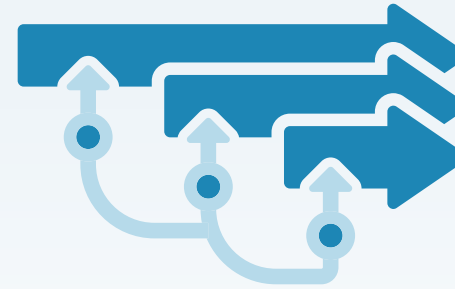
Introduction

Industrial Transformation Still Big (and Relevant) News

We all know something big is happening “out there” in industrial operations around the globe. Companies are going beyond standard practices in Continuous Improvement (CI) as they seek step change improvement. Among them, programs go by a range of names: Digital or Industrial Transformation, Industrie 4.0, Smart Manufacturing, and many others. Whatever your company calls it, questions remain. What are the “big” things industrial companies are trying to accomplish? How are they going about it (strategically and tactically)? What are the key indicators of digital readiness? And what, if anything, is delivering significant improvement?

To answer these questions, we conducted a global survey in December 2018. The study reveals that two-thirds of companies have implemented, are currently implementing, or plan to implement an Industrial Transformation program.

Read on to examine what the survey data reveals about the exact status of digital readiness for Industrial Transformation (IX) programs globally. We include findings on how companies define, scale, staff, and fund IX programs. You’ll learn about the duration, technology and organizational structure they use. The data also shows how companies integrate plant management and shop floor employees into the overall program. Finally, this report identifies best practices around Industrial Transformation.



INDUSTRIAL TRANSFORMATION (IX) IS A PROACTIVE and coordinated approach to leverage digital technologies to create step-change improvement in industrial operations. Industrial Transformation is a critical and often the largest subset of a Digital Transformation program that includes initiatives outside of the industrial space, such as redefining customer relationships.



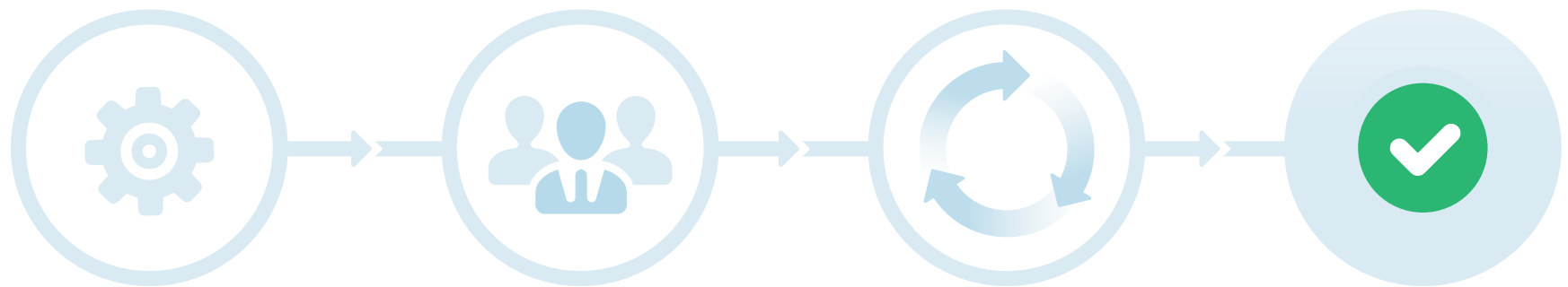
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INDUSTRIAL TRANSFORMATION FRAMEWORK

Industrial Transformation Still Big (and Relevant) News (Cont.)

The survey results are clear: Industrial Transformation leaders are defining and executing Industrial Transformation programs differently than the rest of the market. Among the many differences, these leaders are:

- 31% more likely to focus on business and 60% less likely to make “evaluating/testing IIoT and other technologies” a core strategy;
- 76% more likely to combine Continuous Improvement and Industrial Transformation teams;
- 2.7 times more likely to fund a portion of the rollout of Industrial Transformation solutions to the plants;
- Significantly more likely to have an enterprise-wide view of operations, and four times more likely to manage operations as a “tightly orchestrated team;” and
- Making investments in dramatically more types of digital and Industrial Internet of Things (IIoT) technologies.

The newest data clearly shows that Industrial Transformation is working and that now is the time to pursue such a program aggressively. Ultimately, we find that technology doesn’t drive success; instead, success is the result of process changes empowered by collaborative technologies.





SECTION 2

Demographics

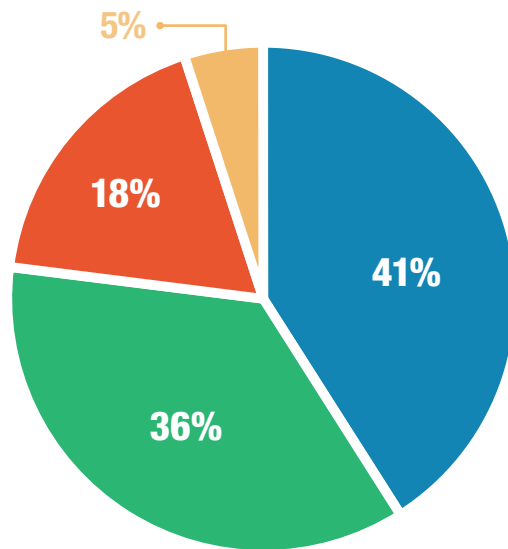
Demographics

LNS Research executed a global survey on the state of Industrial Transformation programs. We surveyed executives, management and operations personnel across a wide range of industries and geographies. At the time of publication, there were 302 completed surveys. Given the extensive length of the survey we believe respondents had marked interest in the research topic.

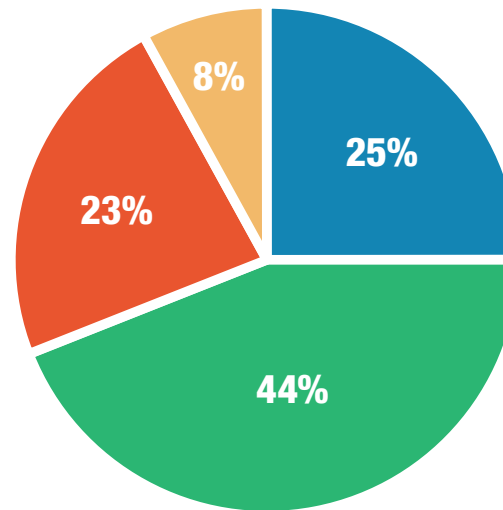
LNS Research conducts its surveys in English, and primarily serves industrial companies in North America and English-speaking Europe. The survey responses were, though, quite global in nature given the English only limitation.

Respondents work for corporations with a wide range of business revenues with 40% of the companies having revenues over \$1 billion and 38% having revenues less than \$500 million in 2017.

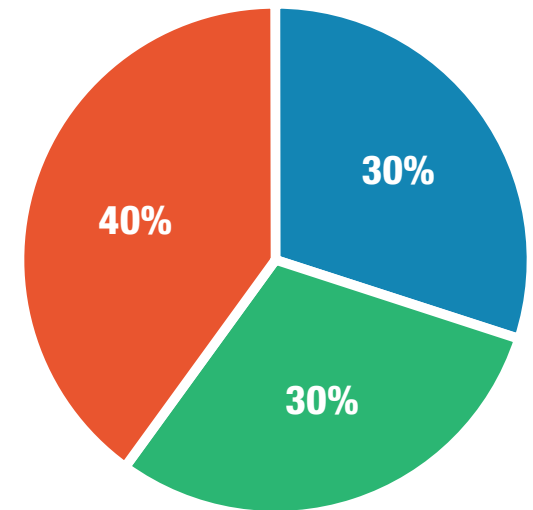
Companies with IIoT technologies often have the capability to supply customers with IoT-enabled products. Therefore, we specifically asked where the company is in an industry's supply chain and whether that was a strategic component of their program. Forty-six percent of companies surveyed are providing OEM products to other companies.



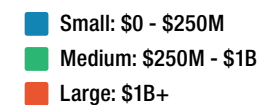
GEOGRAPHY
Color by HQ Location



INDUSTRY
Color by Industry



REVENUE
Color by Company Revenue



SECTION 3



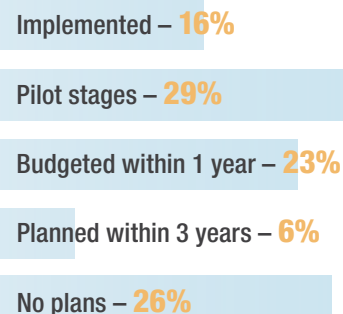
State of Industrial Transformation

Industrial Transformation Advancing

Industrial Transformation (IX) programs are clearly an important initiative for enterprises across geographies and industries. Forty-five percent of industrial organizations are already engaged, and another 23% of companies expect to launch programs within one year. Among companies that have already implemented or are piloting technologies, 42% are more than three years into the transformation journey. The average IX program has ten distinct initiatives/projects, and the largest organizations have just slightly more. Today, most companies focus on the key steps of proof-of-concept and pilots in the implementation plan. Thirty-eight percent of companies say that working with equipment suppliers is a key component of the transformation effort. Quality objectives are explicitly cited as important. Safety objectives are too, in the sense that safety performance directly impacts production capacity and operational efficiency. We see a strong indication in these objectives that quality and safety performance is integral with operations performance.



STATUS OF IX PROGRAM



Industrial Transformation Advancing (Cont.)

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UNDERSTANDING DIGITAL
TRANSFORMATION TODAY

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STEPS IN IX IMPLEMENTATION

- Corporate-level proof-of-concept – **38%**
- Plant-level proof-of-concept – **20%**
- Corporate-level pilot – **26%**
- Multiple corporate-level pilots – **20%**
- Plant-level pilot – **23%**
- Multiple plant-level pilots – **20%**
- Value chain-wide rollout for single function – **18%**
- Multiple plant rollout for single function – **25%**
(i.e., quality, productivity, reliability, etc.)
- Single plant rollout for single function – **20%**
- Value chain-wide rollout for multiple or all functions – **8%**
- Multiple plant rollout for multiple or all functions – **18%**
- Total plant rollout for multiple or all functions – **16%**
- Single plant rollout for multiple or all functions – **15%**



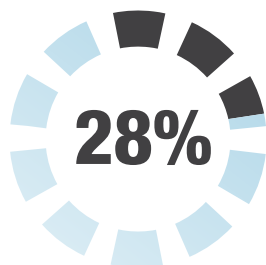
IX PROGRAM STEPS COMPLETE

- Corporate-level proof-of-concept – **29%**
- Plant-level proof-of-concept – **14%**
- Corporate-level pilot – **13%**
- Multiple corporate-level pilots – **13%**
- Plant-level pilot – **15%**
- Multiple plant-level pilots – **14%**
- Value chain-wide rollout for single function – **9%**
- Multiple plant rollout for single function – **11%**
(i.e., quality, productivity, reliability, etc.)
- Single plant rollout for single function – **11%**
- Value chain-wide rollout for multiple or all functions – **6%**
- Multiple plant rollout for multiple or all functions – **9%**
- Total plant rollout for multiple or all functions – **7%**
- Single plant rollout for multiple or all functions – **6%**
- None – **8%**

Wide Gap Between “IX Leaders” and All Others

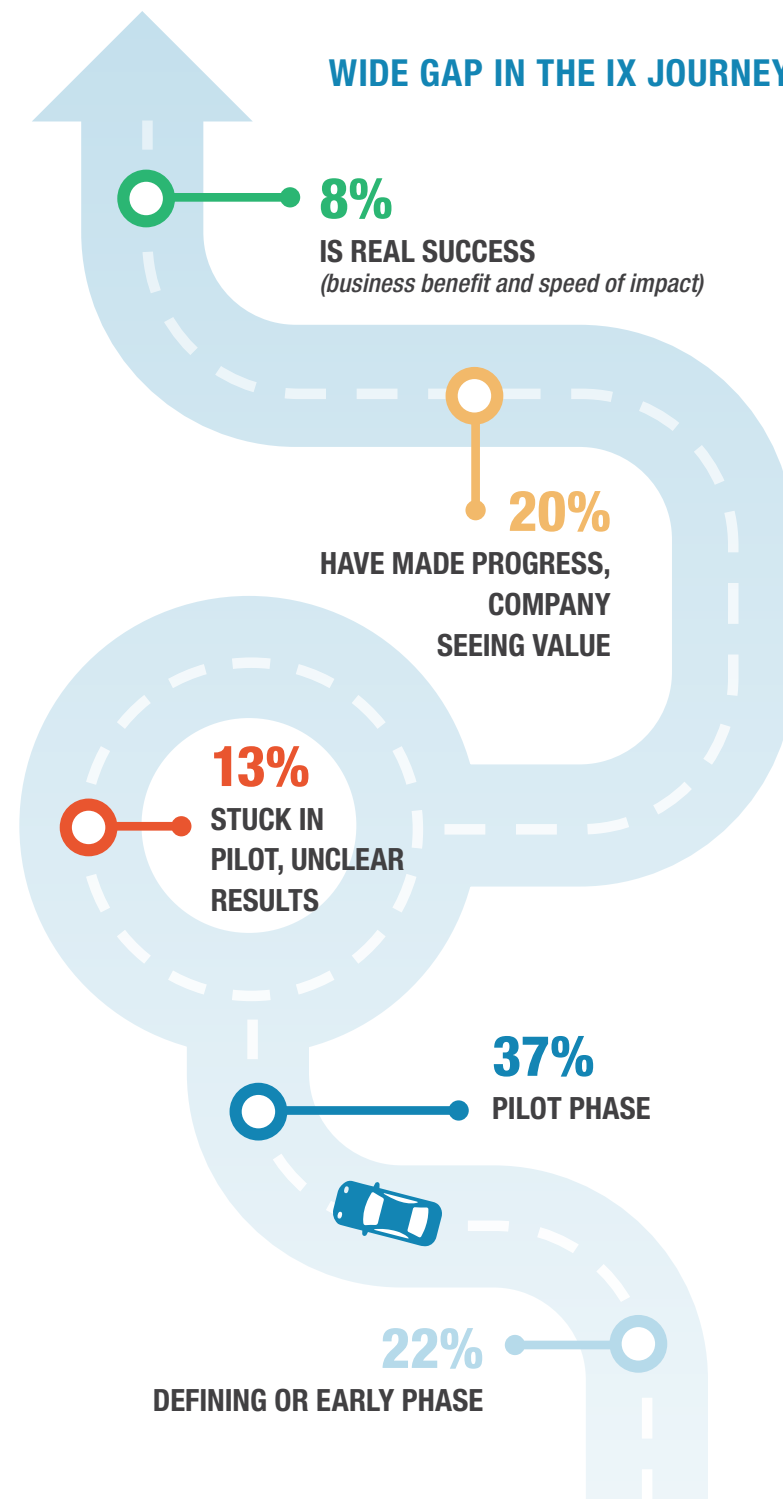
Where are industrials in the search for step change improvement in operations? Eight percent of companies describe the IX program as a “real success,” while another 20% report they are “making progress and the corporation is seeing value.” All other companies say they are in the definitional phase, pilot phase or “stuck in” pilot phase. Not surprisingly, the majority of respondents are still in early or pilot stages.

The top 28% of companies say that the Industrial Transformation program is working. When we cross-reference that self-assessment against return on investment via incremental revenue realized and/or cost savings, we found a good correlation between the two definitions of success. Therefore, LNS Research calls the companies in this top 28% “Industrial Transformation Leaders” (IX Leaders). In this report, we refer to the other 72% of companies as “Followers” because they have not yet received positive results from the Industrial Transformation program. (Twenty-six percent of companies have no plans around IX and will be the subject of forthcoming LNS Research.)



Where the IX program is concerned,
THE TOP 28% OF COMPANIES ARE A REAL SUCCESS in terms of business benefit and speed of program impact, or have made progress and are seeing value.

WIDE GAP IN THE IX JOURNEY



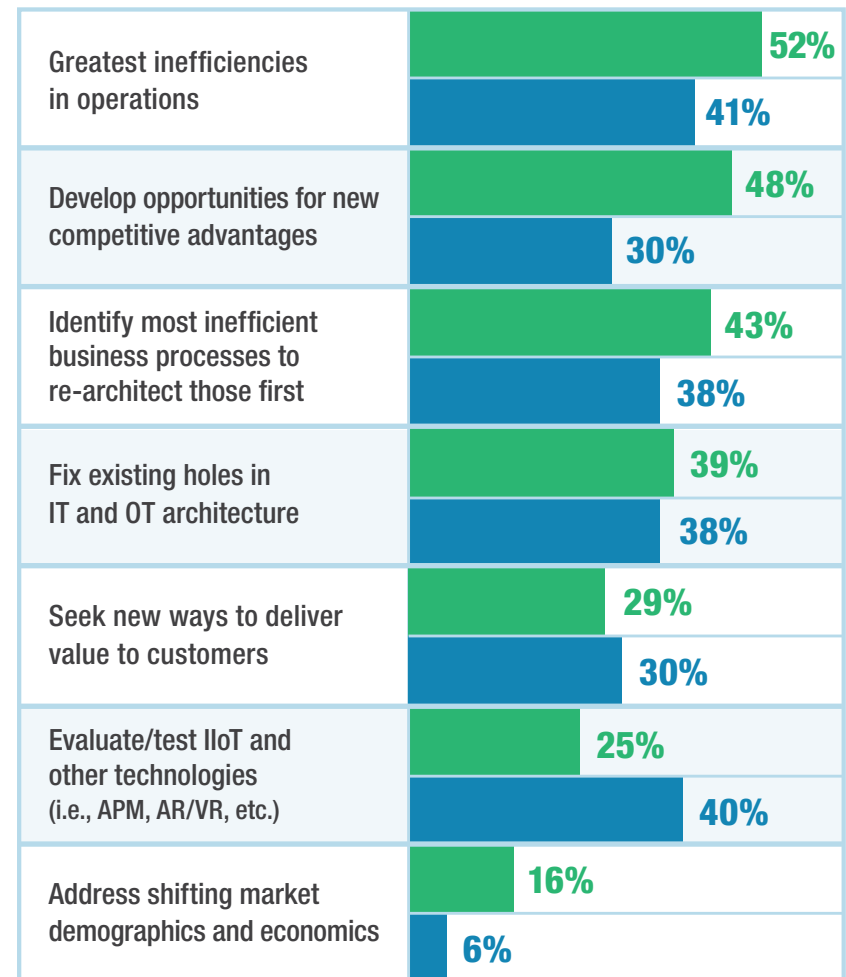
Wide Gap Between “IX Leaders” and All Others (Cont.)

When we examine “how” companies develop their IX program strategies, we immediately see a wide gap between IX Leaders and all other companies. IX Leaders have a different program focus and more expansive functional scope.

LNS Research has heard several IIoT and advanced industrial analytics vendors make recommendations to manufacturing prospects to install software and immediately start trying to solve problems with the vendor’s technology. When we examine the data from manufacturers, we find that is not the strategy most likely to lead to success. In fact, we discover just the opposite. IX Leaders are 60% less likely to use “evaluating/testing IIoT and other technologies” as a core strategy in the program, and 31% more likely to use business process improvement strategies to organize the program.

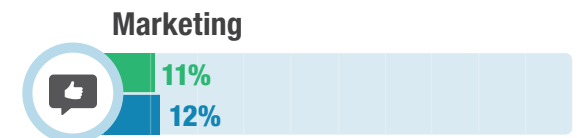
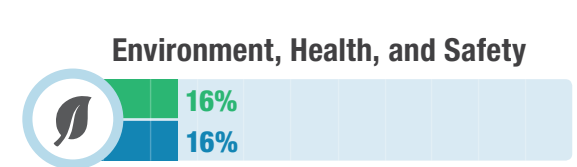
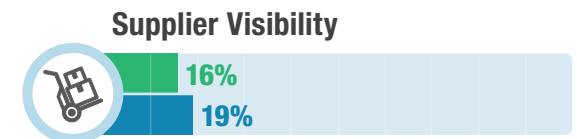
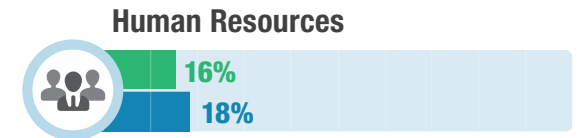
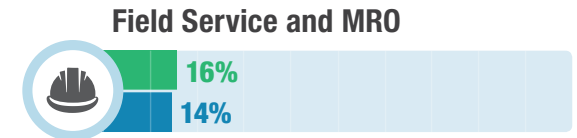
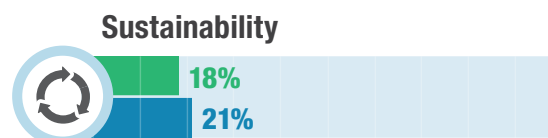
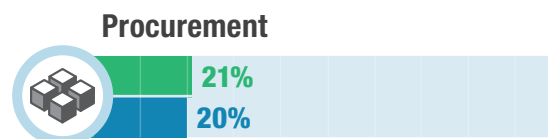
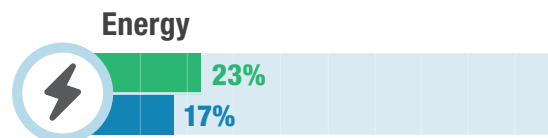
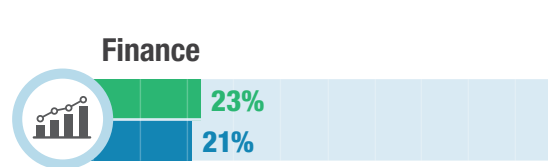
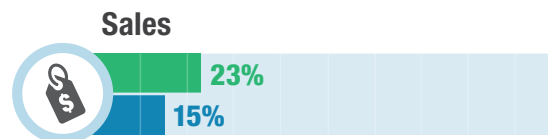
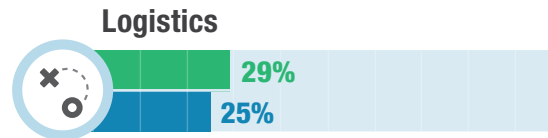
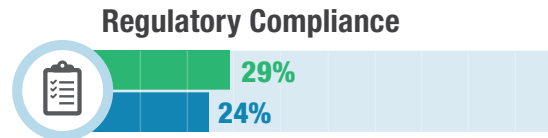
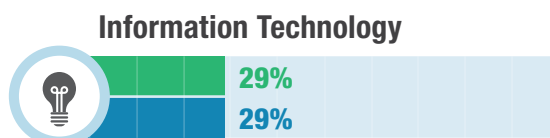
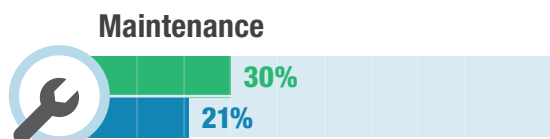
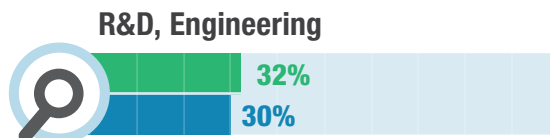
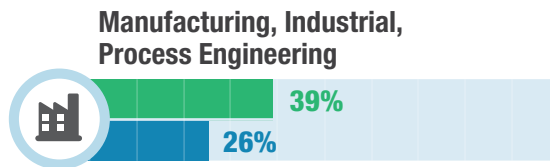
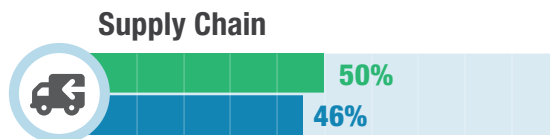
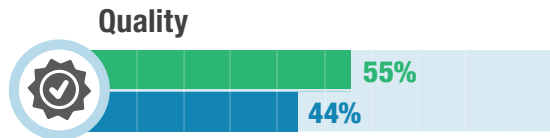
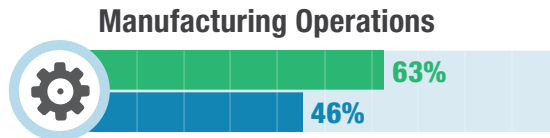
IX Leaders are 60% LESS LIKELY
to use “evaluating/testing IIoT and
other technologies” as a core strategy
in the IX program, and
31% MORE LIKELY to use
business process improvement
strategies to organize the program.

IX Program Strategy Focus



IX LEADERS FOLLOWERS

Functional Area Within Scope of Industrial Transformation



IX LEADERS
 FOLLOWERS

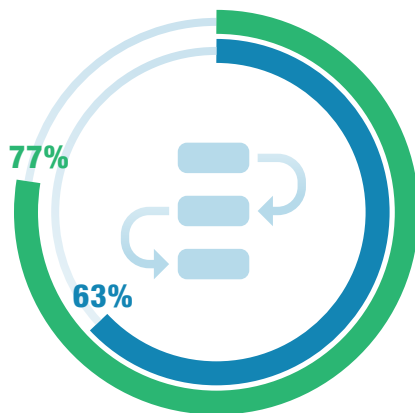
Many More Secrets to IX Leaders' Success

As we dig a little deeper, we also learn that where focus and functional scope is concerned, IX Leaders are simply doing “more” than the rest of the market. IX Leaders are 53% more likely to **focus on smart connected products to grow revenue and market share** by changing customers’ experiences. They are also 22% more likely to include a **focus on smart connected operations to improve performance** within and across plants or production facilities. The theme of “more” continues as we shift to functional scope of the IX program. IX Leaders across the industrial market have a more

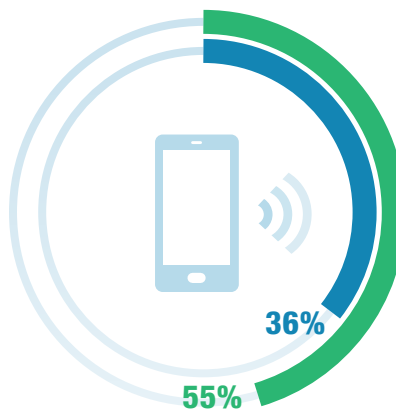
expansive scope of program, with a heavier focus on manufacturing operations, quality, supply chain, maintenance, and manufacturing/industrial/process engineering.

LNS Research discerns two “life lessons” from this data about digital readiness. First, the primary focus of an Industrial Transformation program must be the pursuit of business benefit, not testing technology for insight. Second, broad focus and scope are critical for success. These themes consistently emerge as we examine the research data further.

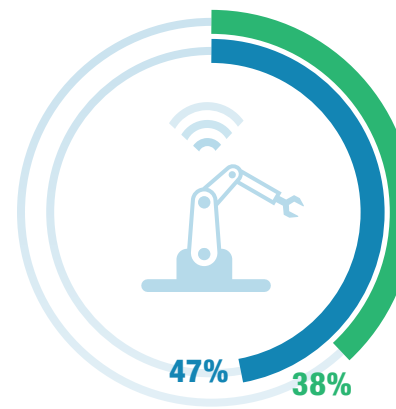
IX Focus



Smart Connected Operations



Smart Connected Products



Smart Connected Assets

IX LEADERS FOLLOWERS



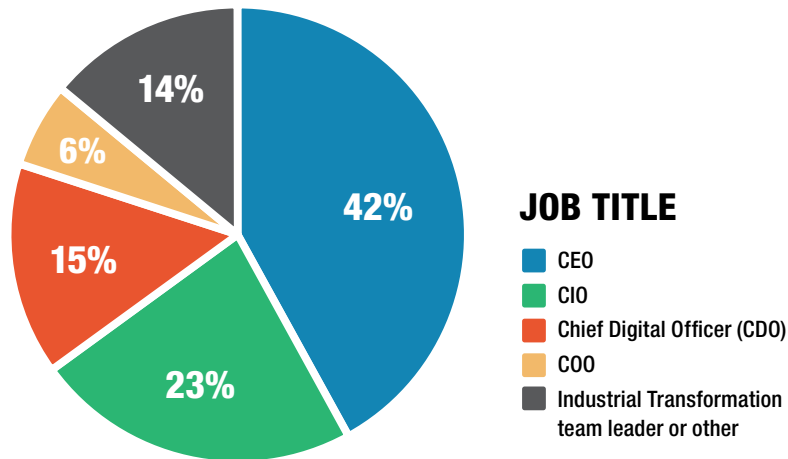
SECTION 4

Organization and Budget Considerations

Top Management Driving Change

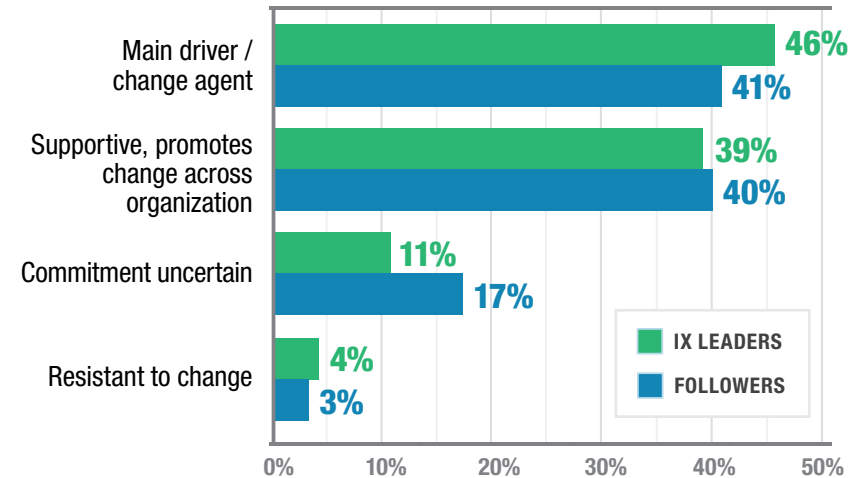
The survey data is quite clear: Industrial Transformation is a high-level priority for industrial organizations. When it comes to planning and executing the program, executive management is at the helm — the board of directors, CEO, COO, or CFO is responsible for budget allocation and spend. Eighty-five percent of IX Leaders say executive management is actively driving or promoting IX change. We believe that “top down” is a critical attribute to the success of an IX program.

Heading Up the IX Program

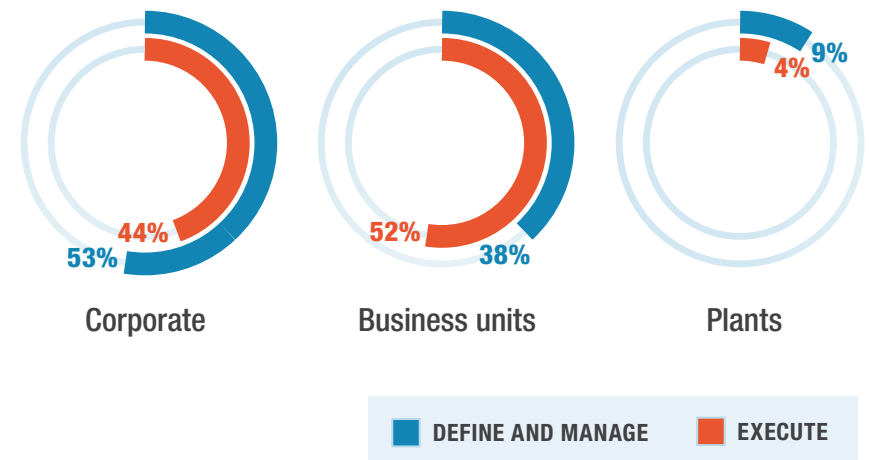


It's no surprise that “corporate” tends to lead in defining the IX program (53% of companies), followed by business units (38% of companies). Those numbers flip when it comes to executing on the program; 52% of companies say business units take the lead in executing. Plants are seldom the lead for either defining or executing the Industrial Transformation program.

Executive Management's Attitude Toward IX



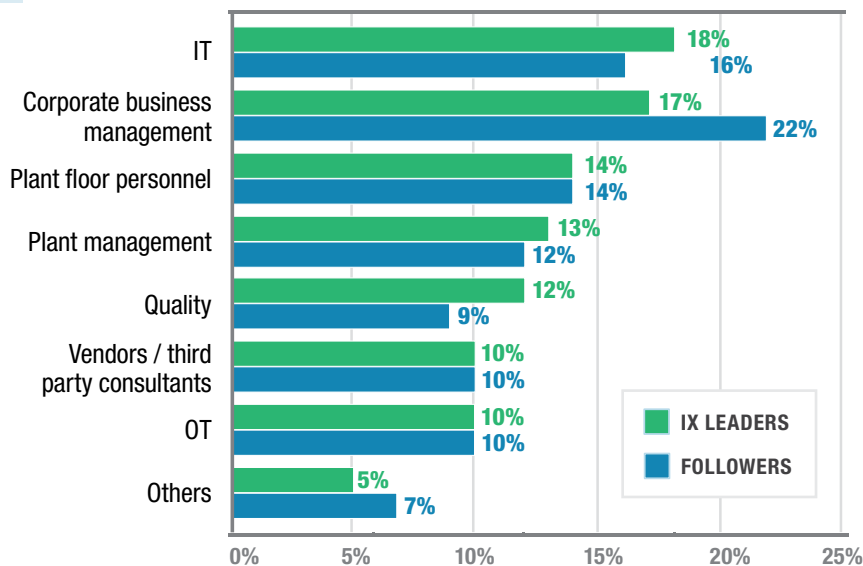
Driver of IX Program



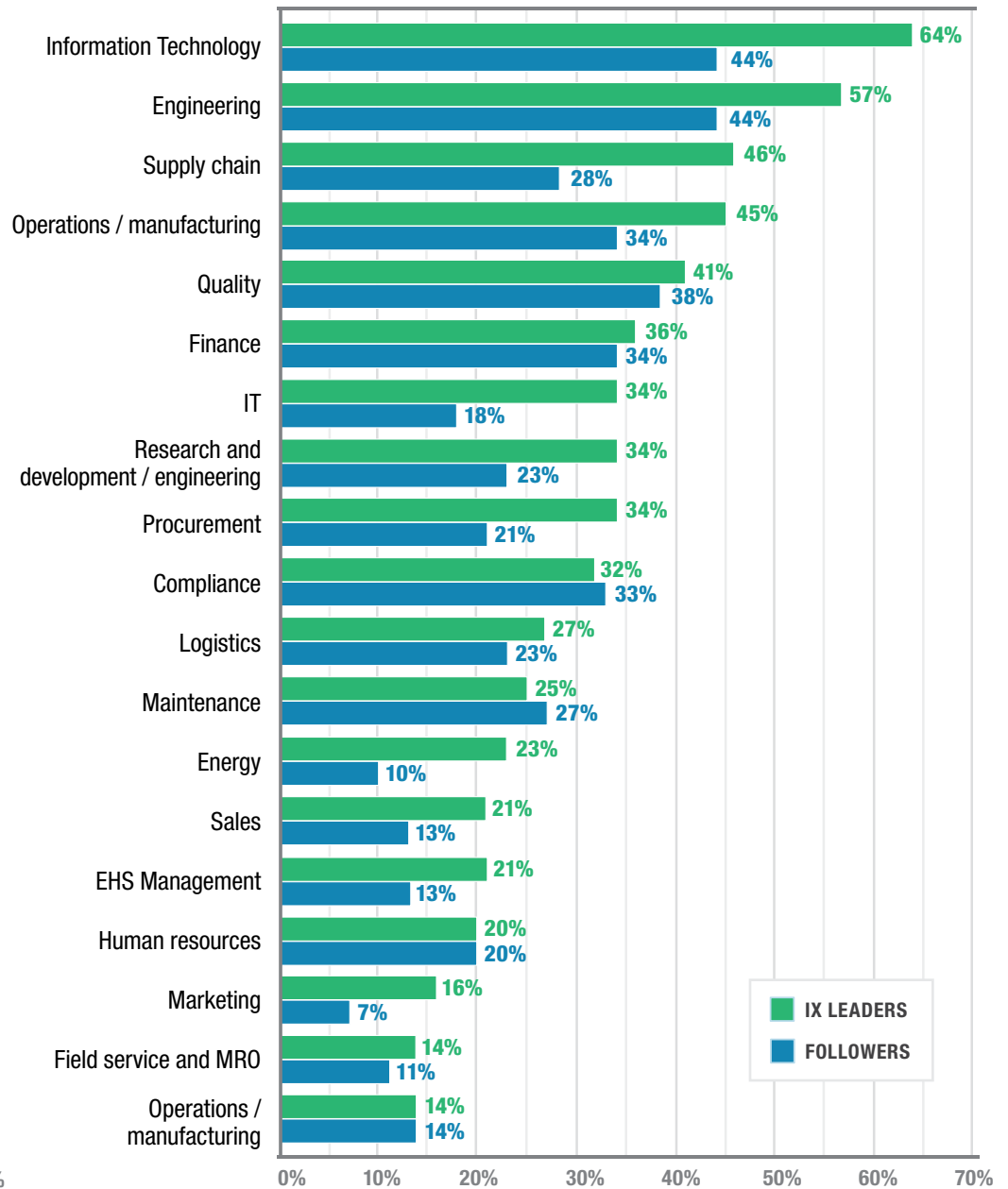
Successful Programs Are Highly Inclusive

The “flip” from “top down” to “bottom up” becomes more obvious as we drill down to examine how companies staff programs, and the relationship between executives and the rest of the organization. The IX Leaders morph the program from “top-down” to “bottom up” to ensure adequate subject matter expertise. IX Leaders are also more inclusive in staffing; they want representation and participation from everywhere, almost across the board. IX Leaders are more likely to include engineering, supply chain, operations/manufacturing, and quality personnel on the program teams. The one exception was around corporate business management. In fact, IX Leaders have less participation at the “corporate business management” level, which is a strong indicator of the “bottom up” approach.

IX Team Mix



IX Leaders Industrial Transformation Program More "Inclusive"



Successful Programs Are Highly Inclusive (Cont.)

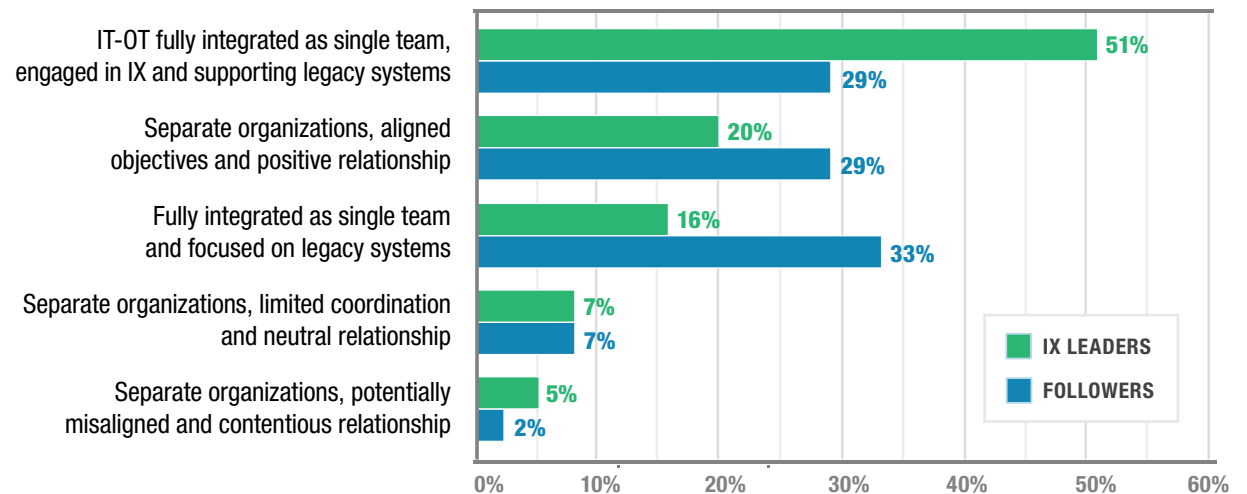
We also see evidence that IX Leaders look to third parties for subject matter expertise when defining and executing the program. IX Leaders are 119% more likely to use a specialized consultant or industry analyst to define the program, and 142% more likely to use them in the execution of the strategy. (Disclosure: LNS Research provides consulting on Industrial Transformation strategies.)

As we examine the data, we identify two additional organizational characteristics that correlate to Industrial Transformation program success. First, IX Leaders are significantly more likely to have an enterprise view of manufacturing. They are also four times more likely to manage plants as a “tightly orchestrated team” and are 24% more

likely to have tight coordination and control within a business line. This management style is critical given the IX funding model, which we’ll discuss in the next section.

The second key organization characteristic is that **IT and operational technology (OT) teams are fully integrated into a single team engaged in both Industrial Transformation** and support of legacy systems. IX Leaders are 76% more likely to have a fully integrated IT-OT team. This organizational structure is yet another example of IX Leaders’ greater emphasis on wide inclusion and ensuring participation of subject matter experts in the IX journey.

IT-OT Team Integration



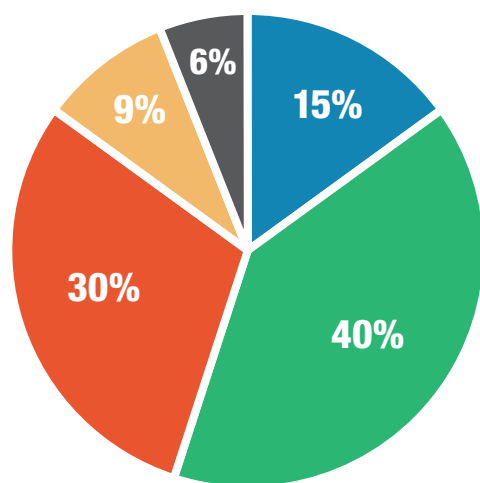
Funding Industrial Transformation

While budget is relative to company size, the “small” nature of these budgets is illustrated in that only 6% of companies have a three-year budget over \$100 million, while over 40% of companies report revenues over \$1 billion (20% over \$5 billion). The reality reflects the implementation strategy we noted above: Industrial Transformation is about corporate or business unit pilots/proof-of-concept and demonstrating the value of specific initiatives and solutions. Plants and business units are then generally required to fund the rollout of the initiatives and solutions. In fact, in 58% of organizations, individual plants or business units are required to fund the IX initiatives and solutions themselves. This funding mechanism may account for why

few companies are stuck in pilot phase — it’s precisely how companies structure the program.

Two distinct best practices emerge when we examine responses about budget. First, IX Leaders are significantly more likely to fund the Industrial Transformation project incrementally, rather than carving it out of existing IT or operational budgets. Second, IX Leaders are 2.7 times more likely to have joint funding, with the program budget funding some initiative and solutions centrally (though only a small percentage of IX Leaders have a joint funding model). Both practices encourage plant engagement and rollout.

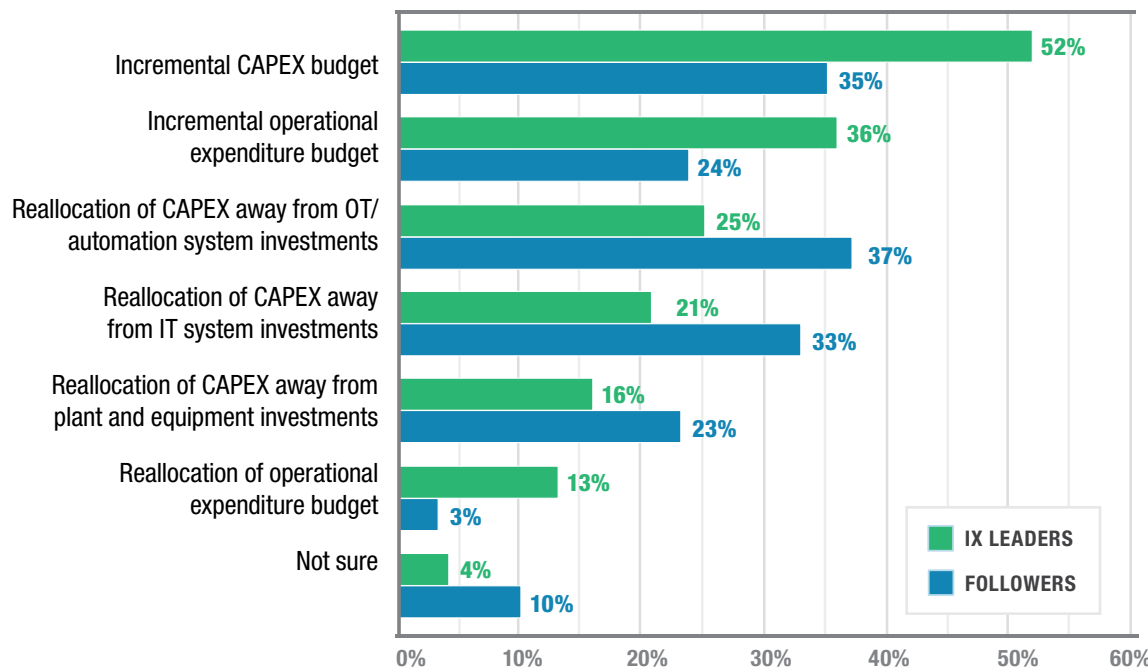
IX Budget, Next 3 Years



BUDGET



Source of IX Program Budget



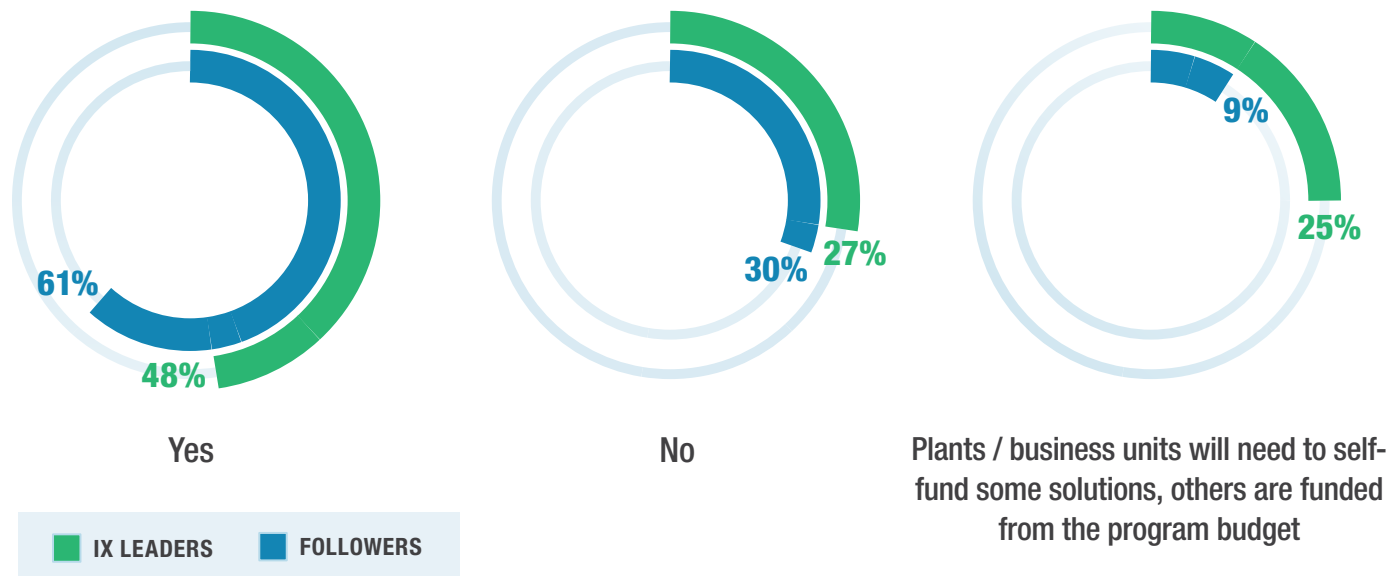
Funding Industrial Transformation (Cont.)

This funding model is a core success factor for Industrial Transformation and a key reason why “more” is better for the program. In an environment where plants can cherry pick which, if any, solutions they want to adopt, the breadth of choice can be critical. Since IX Leaders are more likely to closely manage extended operations with tight orchestration, plants are likely to “read the tea leaves” and adopt corporate-sponsored technologies faster. Even when it’s on the plant’s dime, if it’s an expected corporate norm, they’re likely to engage.

The life lesson around budget and organization is that “top down” and “bottom up” in concert is necessary. Executive support is imperative in digital readiness for Industrial Transformation to getting the organization engaged and focused. Subject matter experts are equally essential to finding and solving the right problems.

When companies fund IX incrementally, and they have joint funding between plants and a central program budget, they encourage plants to **PARTICIPATE IN AND ROLL OUT INDUSTRIAL TRANSFORMATION INITIATIVES.**

Individual Plants or Business Units Required to Self-Fund IX Program Initiatives / Solutions





SECTION 5

Technology Choices

More Technology Translates to More Success

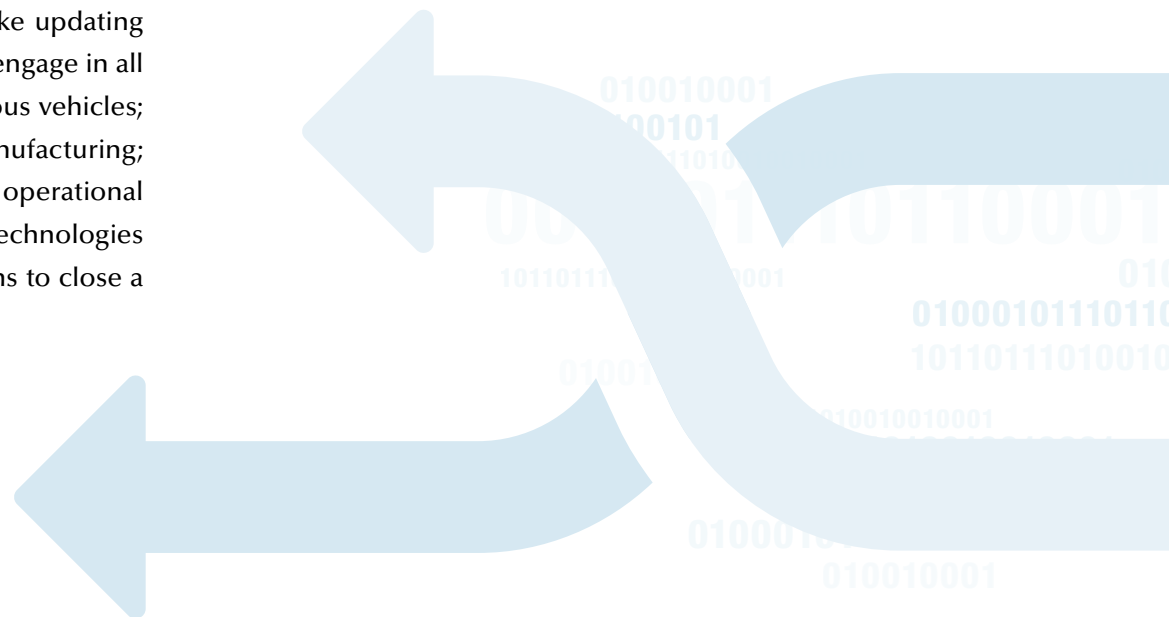
Companies around the world are investing in a wide array of technologies. While the market noise and much analyst writing suggest that IIoT technologies are the fundamental lynchpin to Industrial Transformation, survey results don't support the hype. Only 40% of IX Leaders and even fewer of all other companies have implemented or are actively piloting IIoT technologies. IX Leaders, however, are 44% more likely to be actively engaged in IIoT technologies than all other organizations.

The most pronounced trend in the research (illustrated on the following pages) is how much more engaged the IX Leaders are in every technology listed (except drones, which apply to only a limited number of industries). Of the 14 total technology choices offered (which included updating / upgrading / rearchitecting three types of existing tech), IIoT is just one of 13 in which IX Leaders were dramatically more likely to be engaged. Across these technology choices, we see a similar pattern: only 30-40% of IX Leaders are engaged with any single technology and on average are 78% more likely to engage in that technology. Interestingly, this trend holds true across bleeding edge tech like blockchain and more mundane things like updating OT technology. IX Leaders are at least twice as likely to engage in all of the following efforts: converge OT and IT; autonomous vehicles; robots or cobots in production; 3D printing/additive manufacturing; blockchain; update IT business systems; and upgrade operational technology. On average, IX Leaders invest in five technologies compared to two for everyone else. Followers have plans to close a portion of the gap with IX Leaders over time.

When we drill down into those companies that responded they are already implementing or piloting an Industrial Internet of Things (IIoT) platform, advanced analytics and/or technologies, we saw the same thing: dramatically more engagement by IX Leaders in all 11 technology choices listed. IX Leaders are, on average, 86% more likely to engage in each of these 11 IIoT technologies.

There could be two things driving this startling trend across IIoT and technology more generally. First, the plant funding model makes choice advantageous; plants are more likely to deploy a technology if there is a variety to choose from. Second, a disproportionate percentage of IX Leaders are in the \$1-5 billion revenue grouping; these companies have adequate resources to deploy a large variety of technologies.

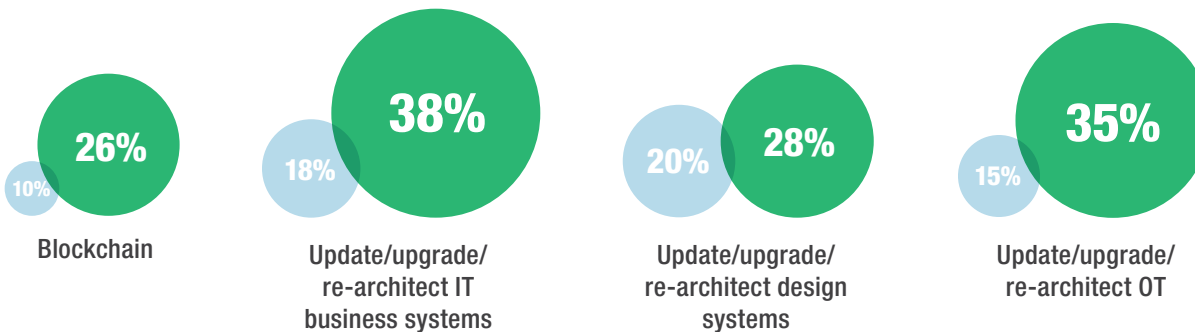
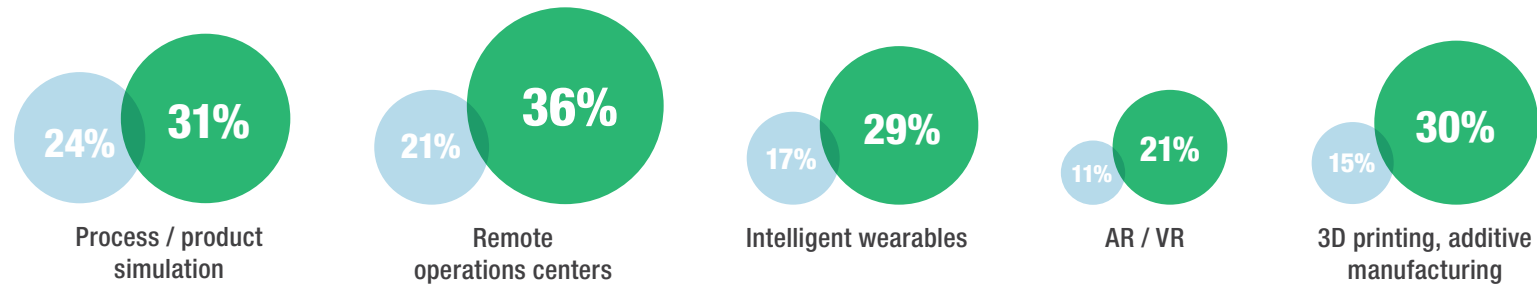
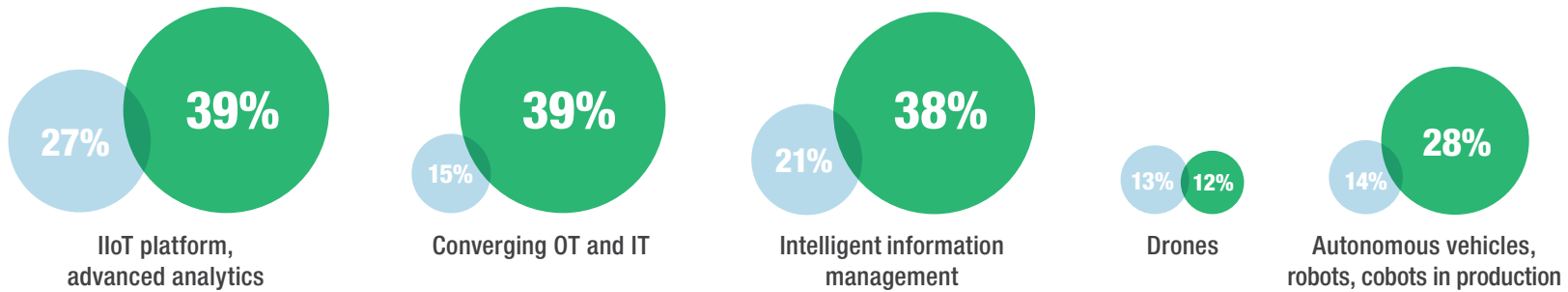
The life lesson? Yes, industrial organizations should [consider IIoT and advanced analytics](#) plus a wide range of other digital technologies. Moreover, a key indicator of digital readiness is the ability and willingness to pursue multiple technologies simultaneously.



More Technology Translates to More Success (Cont.)

IX Leaders Using / Deploying Technologies at Substantially Higher Rate Than Followers

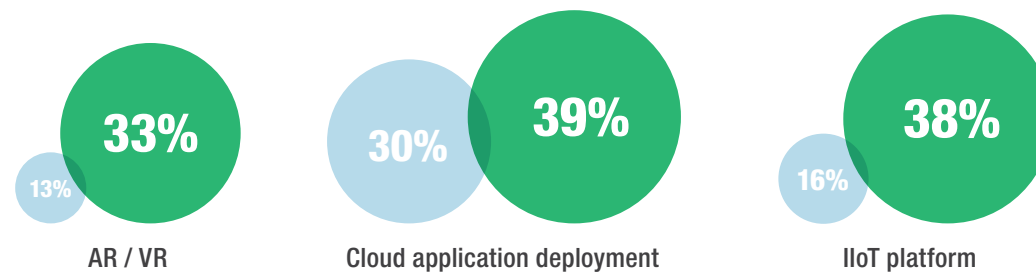
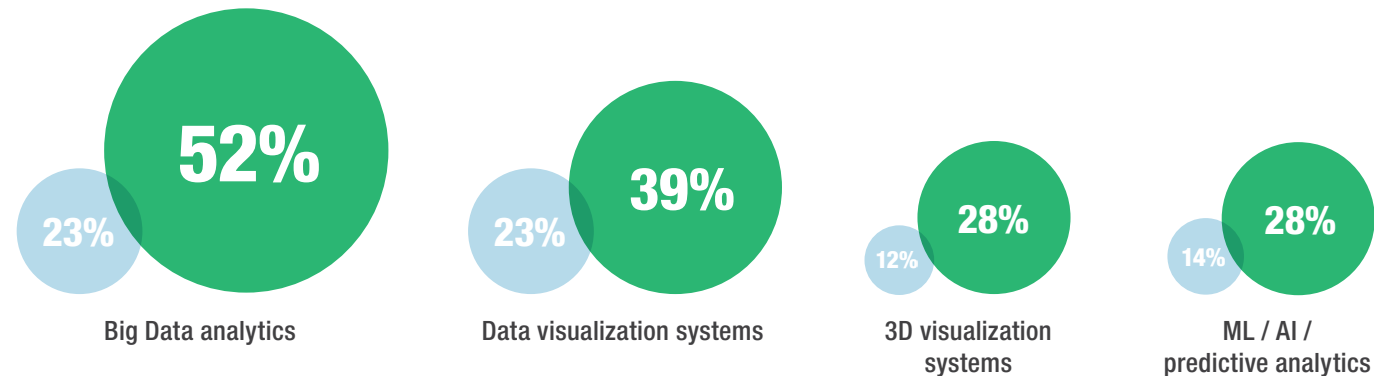
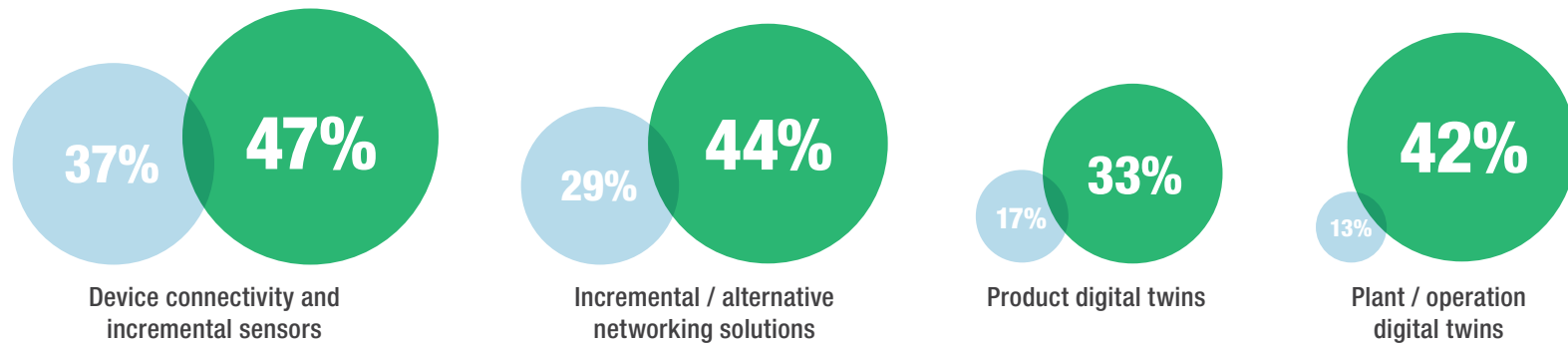
FOLLOWERS IX LEADERS



More Technology Translates to More Success (Cont.)

IX Leaders Using / Deploying IIoT Technologies at Substantially Higher Rate Than Followers

FOLLOWERS IX LEADERS





SECTION 6

Impact of IT and OT on Digital Readiness

Solid Systems Foundation Necessary

Where IT and OT systems are concerned, we wanted to learn if companies have common systems across the enterprise. Also, are those system effective? Do companies consider them core to the IX program? The message was clear: [a solid IT / OT foundation is a key indicator of digital readiness for Industrial Transformation.](#)

IX Leaders rate OT systems higher and have more commonality across plants. Forty-eight percent of IX Leaders report having common OT across all or most major systems and plants, nearly twice as often as Followers. Furthermore, Followers are more likely to have commonality only by business unit or region, and only for some systems. IX Leaders are also 46% more likely to rate their OT systems as best-in-class across most major domains, while Followers are 82% more likely to have OT systems that are “too costly.” The most common limitation IX Leaders note about OT systems, in reality, implies satisfaction with those systems. They are simply looking ahead. Forty-five percent of IX Leaders say they are looking for systems that are more attractive to and supportive of ‘digitally native’ younger employees replacing the aging workforce. IX Leaders are 125% more likely to hold this position than Followers.

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IX LEADERS ARE 125% MORE LIKELY TO HOLD THIS POSITION.



Solid Systems Foundation Necessary (Cont.)

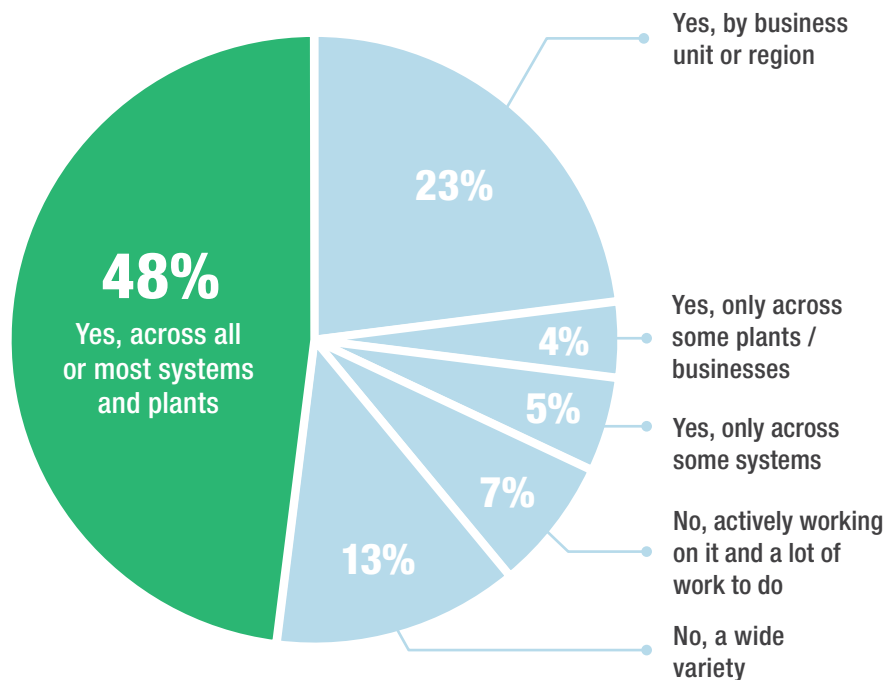
The trend continues with business system / enterprise resource planning (ERP). IX Leaders again rate their systems more highly and have more commonality across plants than Followers. Forty-six percent of IX Leaders have common ERP systems across all or most systems and plants, and they are 53% more likely to have common

systems across “all or most” systems and plants. Just like OT, Followers are more likely to have commonality only by business unit or region, and only for some systems.

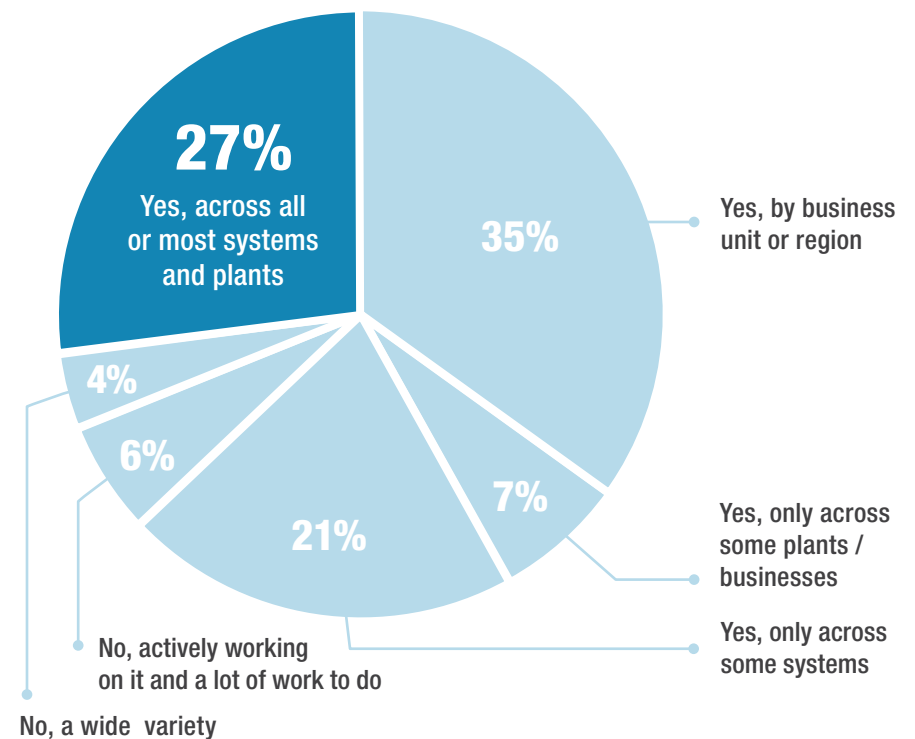
The IT-OT life lesson is clear: digital readiness is built on a solid systems foundation.

Common OT Systems in Plants

STATUS AND PORTION OF IX LEADERS



STATUS AND PORTION OF FOLLOWERS





SECTION 7

Recommendations and Resources

From Life Lessons to Best Practices

As we examine digital readiness, an interesting demographic detail emerges: IX Leaders (those “winning” with Industrial Transformation) are atypically distributed by revenue. More than 33% of IX Leaders have revenue of \$1-5 billion despite being only 16% of survey respondents. We infer that these companies are large enough to have a meaningful IX program, but small enough that differences in geographies and business units/types don’t overwhelm the program.

As we reflect on the life lessons the survey offers, manufacturers should strive to put five clusters of recommendations into action.

BEST PRACTICE #1

The Power of More

The most compelling trend is that leaders do “more” across nearly every dimension. They have a larger functional scope, broader focus and more breadth of representation from functional groups on the program team. They also focus on solutions for suppliers and customers. IX Leaders deploy vastly more technologies generally and significantly more IIoT technologies when they deploy IIoT technologies. They jointly fund more initiatives and solutions. Followers are “planning” to close some of the gaps sometime in the future.

BEST PRACTICE #2

Combine Top Down and Bottom Up

“More” in the way of subject matter experts is a cornerstone of a top down / bottom up approach. Industrial Transformation is a high-profile project across industrial enterprises globally. Executive support is critical to get the program going, funded, and make it high profile internally. However, top down alone doesn’t lead to success. Subject matter expertise from the plants, plant management, and specialized contractors correlates to success. Given the funding model, plant engagement early and often appears to be a critical success factor for rollouts over time. The IX program needs to build on executive support by reaching out to subject matter experts to increase the probability of success.



From Life Lessons to Best Practices (Cont.)

BEST PRACTICE #3

Business Focus (Not Tech)

The need to focus on business problems rather than technology drives the critical role of plant-level subject matter expertise. Transformation isn't the result of technology; rather it comes from process changes empowered by collaborative technologies. Understanding the power of technology to enable change is essential, but it can't be the organizing principle of the IX program.

One business process reengineering opportunity that the research hints at is managing more plants in a more tightly coordinated/orchestrated way. IX Leaders are ahead in managing operations in such a manner. Companies that want to emulate IX Leaders may want to evaluate whether that might be a possible transformational opportunity.

BEST PRACTICE #4

Industrial Transformation is Substantially More than IIoT

When looking at technology, use a wide-angle lens. Despite the hype, successful companies are not driving Industrial Transformation with IIoT alone. IX Leaders explore and invest in many technologies including IIoT and beyond. They implement bleeding edge and more mundane technologies to fill in system gaps and to rearchitect business processes. The data is quite clear: IIoT is part of but not the entire answer.

BEST PRACTICE #5

Build on a Solid Systems Foundation

A strong IT-OT foundation with best-in-class systems deployed widely is a key indicator of digital readiness for Industrial Transformation. If you don't already have a strong OT and IT foundation, a focus on your systems may, in fact, be your most valuable transformational opportunity. Interestingly, 34% of industrial companies with "no plans" for Industrial Transformation were on hold precisely because the company is currently engaged in a major IT rollout or upgrade which limits resources for a transformative program. It is, in fact, the most common reason for "no plans." That 34% may view building a solid foundation as a precursor to Industrial Transformation. We see it merely as a key step up the IX maturity curve. Upcoming research on Industrial Transformation maturity will reveal more about this topic.

Recommendation: The Time is Now

The research is compelling. Companies all over the world are going beyond Continuous Improvement to achieve step-change improvements in business. While the numbers are small so far, it's clear that many industrials are finding those step-change improvements in the form of incremental revenue opportunities and cost savings. Industrial Transformation is working. Organizations that don't act now will fall behind.

Industrial Transformation Resource Guide

Companies use digital technology to drive transformation across the value chain. Use these resources to learn how to align the people, processes, and technologies required to achieve Operational Excellence in your organization.

INDUSTRIAL TRANSFORMATION

BLOG | Understanding Industrial Transformation: Definition and Framework for Success

[View Blog →](#)

RESEARCH | Industrial Transformation: Architecture and Analytics Just the Beginning

[View Research →](#)

RESEARCH | Industrial Control Systems and Edge Computing: Enabling an Operational Architecture for Applications and Analytics

[View Research →](#)

INDUSTRIAL ANALYTICS

RESEARCH | Build a Flexible Industrial Analytics Strategy for Today and Tomorrow: Why Business Leaders Should Adopt a Use Case Approach

[View Research →](#)

BLOG | How the Right Operational Architecture Powers the Analytics That Matter

[View Blog →](#)

RESEARCH | Analytics Really Do Matter: Driving Digital Transformation and the Smart Manufacturing Enterprise

[View Research →](#)

FACTORY OF THE FUTURE

RESEARCH | Improving Continuous Improvement: Reinvent Lean Today with Digital Technology

[View Research →](#)

RESEARCH | Forging the Digital Twin in Discrete Manufacturing: A Vision for Unity in the Virtual and Real Worlds

[View Research →](#)

RESEARCH | MOM and PLM in the IIoT Age: A Cross-Discipline Approach to Digital Transformation

[View Research →](#)

APM 4.0

SOLUTION SELECTION GUIDE | Asset Performance Management (Platform Vendors), 2018 Edition

[View Solution Selection Guide →](#)

RESEARCH | APM 4.0: Prescription for Better Profitability in Operations

[View Research →](#)

RESEARCH | The Road to Digital Transformation Success: A Methodology to Modernize Operational Excellence

[View Research →](#)

Industrial Transformation Resource Guide (Cont.)

QUALITY, COMPLIANCE

RESEARCH | Quality 4.0 Impact and Strategy Handbook

[View Blog →](#)

RESEARCH | Driving Operational Performance with Digital Innovation: Connecting Risk, Quality and Safety for Superior Results

[View Research →](#)

RESEARCH | Roadmap to Supplier Status: Think Risk Performance, Not Compliance

[View Research →](#)

ENVIRONMENT, HEALTH AND SAFETY

WEBCAST | EHS 4.0: Using Technology to Reach New Levels of Safety and Environmental Performance

[Watch Webcast →](#)

RESEARCH | Unify EHS and Quality: Capture Synergies and Turn Policy into Action

[View Research →](#)

RESEARCH | The Connected Worker: Mobilize and Empower People to Reduce Risk and Improve Safety

[View Research →](#)

INDUSTRY FOCUS

AUTOMOTIVE RESEARCH | IATF 16949-2016: A Pivotal Opportunity in Automotive Quality Management

[View Research →](#)

AUTOMOTIVE AND A&D RESEARCH | Manufacturing Performance: Automotive and A&D Gaining Momentum with Analytics

[View Research →](#)

LIFE SCIENCES RESEARCH | Digitalized Quality in Life Sciences: Roadmap to Sustainable Growth and Speeding Profitable, High-Quality Products to Market

[View Research →](#)

LIFE SCIENCES RESEARCH | Quality 4.0 in Pharmaceutical: Use Cases and Advantage in a Digitally Maturing Market

[View Research →](#)

METALS AND MINING RESEARCH | Data for Balanced Scorecard: Driving Profits in Mining, Metals, and Materials Industries

[View Research →](#)

POWER GENERATION RESEARCH | Driving Better Decision Making with Big Data: A Roadmap for Digital Transformation in the Power Generation Industry

[View Research →](#)

UNDERSTANDING INDUSTRIAL TRANSFORMATION TODAY

Digital Readiness is the Foundation for Success

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