



## RESEARCH SPOTLIGHT

# Industrial Transformation (IX) Challenges Consumer Products and Food & Beverage Companies

**IX is Delivering, but not yet consistently  
for the CPG/F&B Industry**

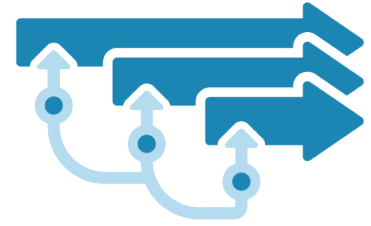


## Executive Summary

The Consumer-Packaged Goods/Food & Beverage (CPG/F&B) Industry is changing. Demand is fluctuating wildly as a result of the COVID-19 pandemic and associated lifestyle changes. Local and microbrands are becoming ever more important. New channels, such as Amazon, must be assimilated. And, long-term trends, such as the increasing role of private labeling, co-packers, and contract manufacturing, continue to reshape the industry.

In the face of this turbulence, CPG/F&B companies are – like so many other industrial enterprises – looking at Industrial Transformation (IX) as a means to drive change. One-half of industrial enterprises report they have embarked on an Industrial Transformation (IX) journey. Companies are going beyond standard practices to seek out step-change improvement in industrial operations with several companies already reporting “dramatic results.” The Leaders in IX have found very real benefits in the form of increased revenues, lowered Cost of Goods Sold (COGS), and increased operating margins. Yet, the CPG/F&B Industry is falling behind. So, what are the CPG/F&B companies doing differently? Why, exactly, are they falling behind? What are the “big” things they are trying to accomplish? And what, if anything, is delivering significant improvement even in CPG/F&B?

To find the answers, LNS Research executed a global survey in early 2021 and published a **baseline eBook** on the subject covering industrials overall. Two-thirds of companies surveyed have implemented, are currently implementing, or plan to implement an Industrial Transformation (IX) Program. Twenty percent of companies are winning at Industrial Transformation: they are 72% more likely to have grown revenues by more than 10% and/or 57% more likely to have reduced Cost of Goods Sold (COGS) by more than 10% as a result of their IX Program.



### 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**



In contrast, we see CPG/F&B manufacturers as behind with fewer companies progressing deeply into their IX journey, and still fewer becoming “IX Leaders” realizing the full benefits of IX. In fact, CPG/F&B manufacturers generally appear to be on a path toward stagnation or even failure in IX. We found:

- CPG/F&B companies are not staffing their teams for success.
- Improving Operational Technology (OT) systems could be a key transformative opportunity for most CPG/F&B manufacturers yet is not a priority in the functional scope of most programs.
- CPG/F&B companies may not be focusing enough on advanced digital technologies of IIoT, advanced analytics, and other technologies at this stage of their IX journey.
- CPG/F&B companies are hyper-focused on the customer experience at the expense of other “low hanging fruit” in IX.

Overall, the newest data clearly shows that Industrial Transformation is working and that now is the time for Consumer Products/Food & Beverage companies to pursue such a program proactively and correctly.



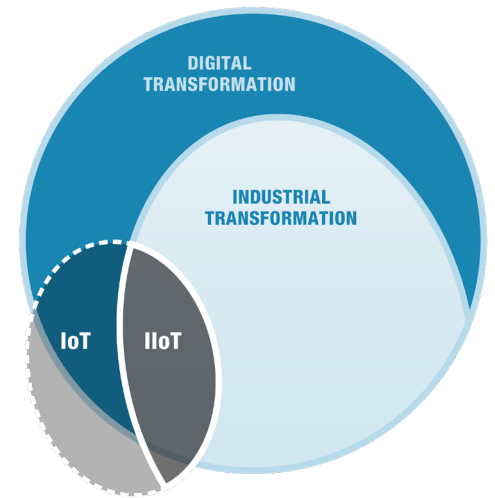


## Industrial Transformation Advancing

Industrial Transformation (IX) has become a very real phenomenon across industrial operations. It goes by many names: Industrie 4.0, Digital, Connected, or Smart Manufacturing. Industrial Transformation is the proactive and coordinated approach in leveraging Digital technologies to create step-change improvement across the value chain. Industrial Transformation is an important, often the largest, subset of a Digital Transformation Program that includes initiatives outside of the industrial space, such as readdressing sales relationships.

More than two-thirds of industrial enterprises surveyed have implemented, are currently implementing, or plan to implement an Industrial Transformation Program. In contrast, only about 48% of CPG/F&B are equally engaged. The average program in CPG/F&B includes 12 distinct initiatives (Quality 4.0, Connected Worker, Digital Twins) and is foreseen as a three-year journey.

The worldwide COVID-19 pandemic is not slowing IX down. Seventy-eight percent of companies are maintaining or accelerating their programs in the face of the economic turmoil created by the pandemic. In fact, IX Leaders are three times more likely to be increasing their IX budget because of COVID-19 and its impacts on manufacturing and the supply chain than Followers.



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**FIGURE 1 - Industrial Transformation (IX) as a subset of Digital Transformation**



# Wide Gap Between “IX Leaders” and “Followers”

So where are Industrials generally, and CPG/F&B companies specifically, in their search for step-change improvement in operations? Five percent of companies overall describe their program as a “real success” with “dramatic results” and another 15% report they are making “significant progress and the corporation is seeing value.” **We define those top 20% of companies successfully executing transformation as IX Leaders.** Followers are all the rest: companies that say they are in the definitional, pilot, or “stuck in pilot” phases. We will be contrasting how IX Leaders are doing generally to Followers (including Laggards) and occasionally to Laggards (stuck in pilot, in pilot stage, or just starting) throughout this document.

The data clearly shows that CPG/F&B companies are behind manufacturers in other industries: only 11% of CPG/F&B companies are IX Leaders, just over one-half the IX Leaders compared to manufacturers generally. Further, CPG/F&B had 50% more companies reporting that they are stuck in the pilot phase and almost TWICE as many companies reporting that they had no plans to engage in IX at all.

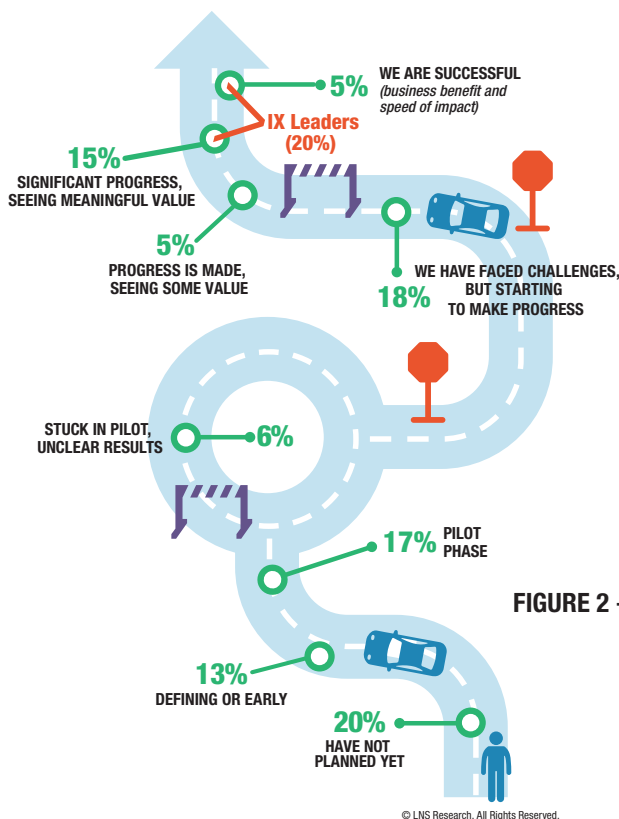


FIGURE 2 - Industrial Transformation Roundabout



Where the Industrial Transformation (IX) Program is concerned, the **top 11% of CPG/F&B companies are a real success in terms of business benefit and speed of program impact** or have made progress, and the corporation is seeing value.

– Tom Comstock  
Principal Analyst



# The Gap is Impacting Financial Performance

Despite all the publicity around “pilot purgatory,” early IX adopters realized significant Return on Investments (ROI) from their IX Program. As detailed in a recent [LNS Research eBook](#), IX is delivering for manufacturers as ROI is being realized widely across IX Leaders. In fact, 80%+ of IX Leaders were able to reduce COGS and/or improve operating margins and/or grow revenues by at least 3% as a result of their IX Program.

IX Leaders are	72%	more likely to	Increase	Revenue	by	10%	as a result of their IX program
	57%		Reduce	COGS		10%	
	43%		Increase	Operating Margin		5%	

FIGURE 3 - Financial Benefits Realized by IX Leaders

CPG/F&B companies were seeing those dramatic results but just not as frequently or regularly as Industrials overall. CPG/F&B were THREE times more likely to report “No Reduction” in Cost of Goods Sold (COGS), and one-half as likely to have realized more than a 5% reduction as industrials more generally. An identical pattern was found in terms of increased revenues. CPG/F&B were FOUR times more likely to report “No Increase” in Revenues, and 72% less likely to have increased revenues by more than 5%.

To be blunt, failure in IX is adversely impacting the financial performance of CPG/F&B companies. Therefore, it is imperative to determine what CPG/F&B companies need to do in order to succeed at IX.

Let’s look at [some of the key Best Practices in IX](#) and evaluate CPG/F&B performance against those Best Practices.



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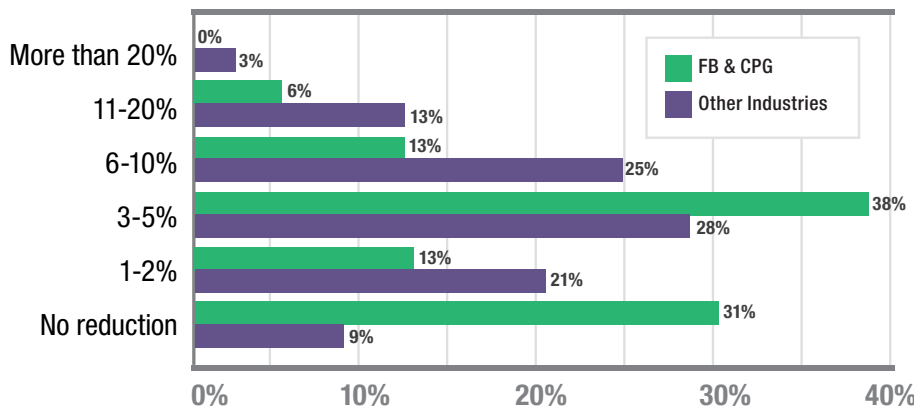
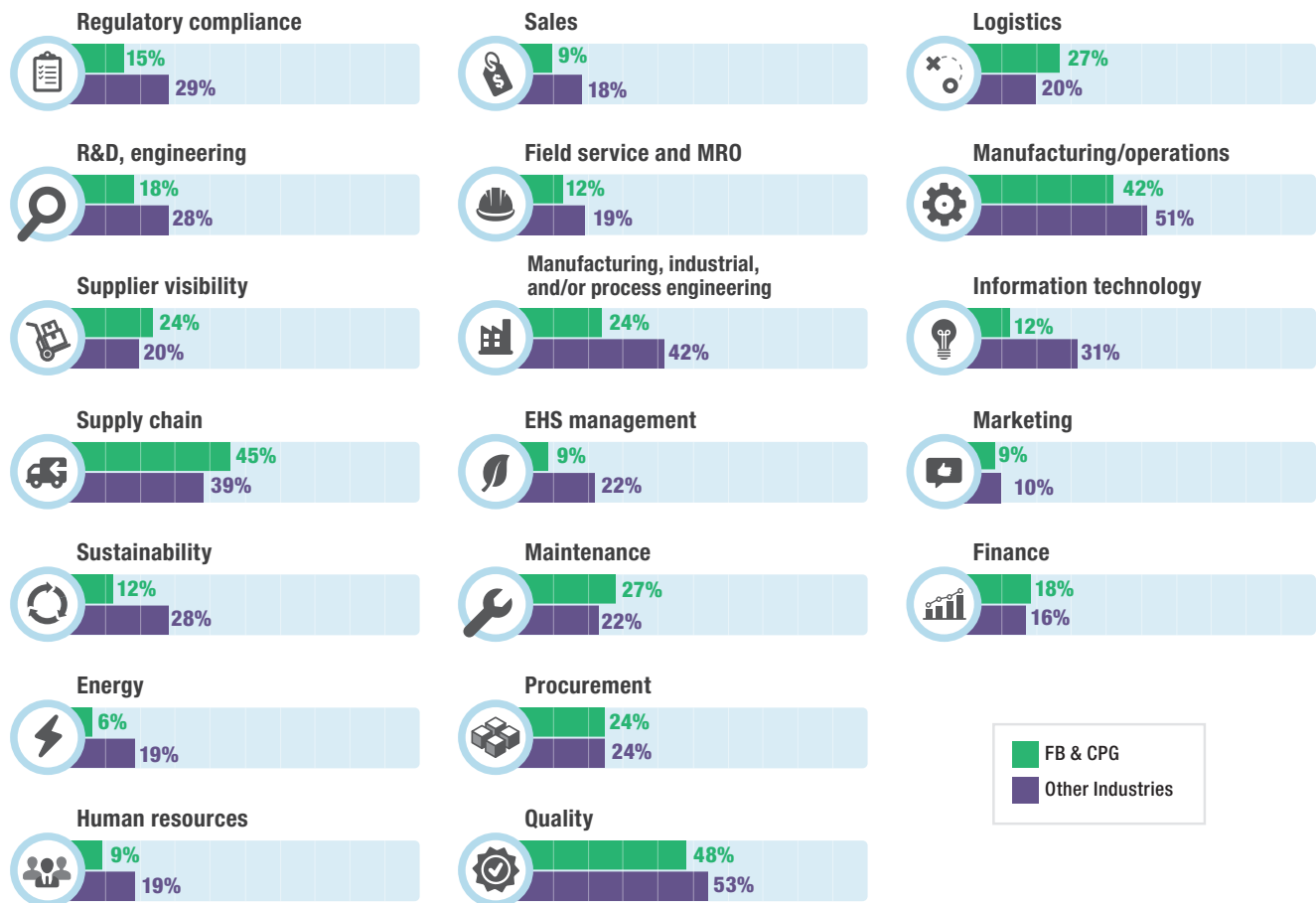


FIGURE 4 - Cost of Goods Sold (COGS) reduced as result of the Industrial Transformation (IX) Program

## Broad Scope of IX Programs

A key area of differentiation for IX Leaders was around the focus and functional scope of the program. IX Leaders have a more expansive scope across their programs generally with a heavier focus on Manufacturing, Operations, EHS, Quality, Supply Chain, Maintenance, and Engineering. In fact, IX Leaders were more likely to include 16 of 18 Functions (often by a significant margin) within the scope of their program than Followers. Conversely, CPG/F&B companies were more likely to include only four of 18 functions compared to industries more generally.



**FIGURE 5 - Functional areas within the scope of Industrial Transformation (IX) programs**



The challenges for CPG/F&B companies in scoping their IX Programs were more than a question of scale. CPG/F&B companies execute IX differently and were deviating notably from IX Leaders' best practices around the functional scope. Whereas IX Leaders were focusing on the "technical" side of Industrial Transformation, CPG/F&B companies were especially likely to be including Sales, Logistics, Procurement, and Supply Chain within the scope of their IX Programs. Clearly, CPG/F&B are hyper-focused on the customer and improving the customer experience (including localization). All good things. All should be pursued. But they may not be the most likely to deliver benefits to the IX Program. CPG/F&B companies were less focused on manufacturing/operations than the average industrial. **The failure to include manufacturing, manufacturing engineering, and other technical domains in the scope of the IX Program may be a critical piece in understanding why CPG/F&B companies are falling behind in IX.** This is especially true given **LNS Research findings that nine out of the top 10 use cases** with the best **impact/effort ratio** (think "bang for the buck") of all 35 IX Use Cases studied are manufacturing-focused and within the four walls of the factory.

To be clear, the focus on the customer and/or consumer is fundamental to these industries and should be a priority of most IX Programs. LNS Research would simply suggest that customer experience should not be the end of those programs. CPG/F&B companies should be doing more.

### Consumer and Customer Driving IX in CPG/F&B

**Evidence that CPG & F&B companies are notably focused on customers and the customer experience include:**

- 30% more likely to be seeking new ways of delivering value to our customers
- Customers experiences is **TWICE** as likely to be the dominant theme in company communications around IX
- 25% more likely to view the company as having a "real commitment to becoming customer/consumer driven"



## Funding and Resourcing Industrial Transformation

As reported in our [baseline eBook](#), the money and resources IX Leaders are putting into transformation are growing. Budgets for IX are still small overall as the primary focus of the IX Program is only around pilots and proof of concepts rather than wide-scale rollouts. But IX Leaders are budgeting more for IX and are 450% more likely to have a three-year budget of \$100MM or more. The data also shows that overall, budgets are up across the board (Leaders and Followers) and for all sizes of companies when we compare 2019 to 2021.

Two best practices came out when we asked more about the budget process. First, we asked, “Where does the budget for Industrial Transformation come from?” We got back a wide distribution of answers as one would expect. We did see a trend: Leaders were significantly more likely to have funded the project “incrementally” rather than carving it out of existing IT or operational budgets. Second, when asked about whether plants had to fund for themselves, we saw Leaders were 2.7 times more likely to have joint funding where the IX Program paid for some initiatives/solutions centrally (though that joint funding model was noted by only a small percentage of Leaders). Both steps encourage plants to participate in and roll out IX initiatives.

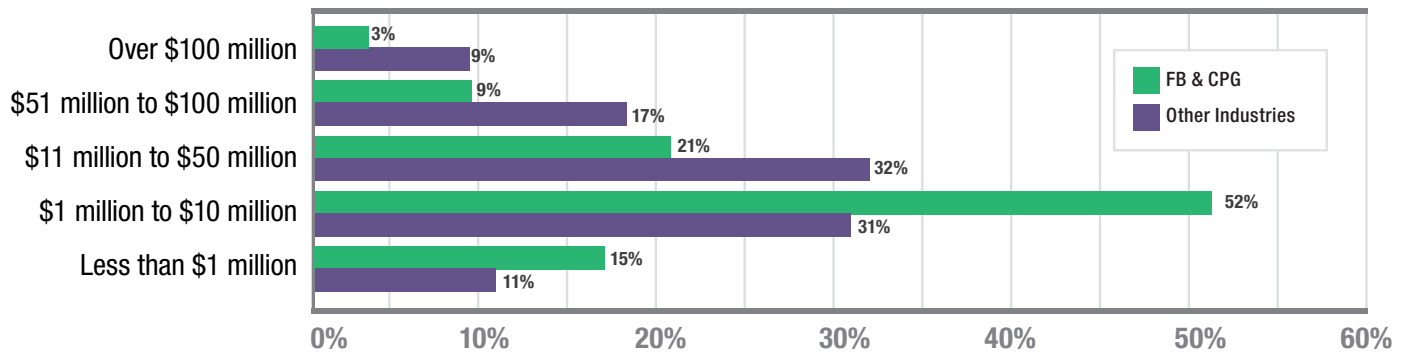


FIGURE 6 - Industrial Transformation (IX) budget over the next three years

Ninety-eight percent of IX Leaders are supporting implementation and are 56% more likely than Followers to be doing so. In fact, IX Leaders' programs are more than TWICE as likely as Followers to be responsible for the "full value chain-wide rollout of digital technologies." The programs of IX Leaders are increasingly coming with a significant share of the rollout budget as well.

CPG/F&B companies are deviating from the known best practice with smaller budgets and a reluctance to support implementations. CPG/F&B are 76% less likely to have a three-year budget over \$10 million. Equally problematic, CPG/F&B are 52% less likely to be providing "incremental" budgets than industrials more generally. Plants are not likely to be enthusiastic about funding the rollout of IX Solutions if the budget that generated those solutions come from reductions in their CAPEX budgets. The pattern continues when we look at implementation support. CPG/F&B are 52% less likely to be providing implementation support to plants – discouraging rapid scaling of the IX Programs' solutions.





## Successful Programs Are Highly Inclusive

IX is a high-profile project across industrial enterprises globally. IX Programs require engagement from large sections of company personnel, rearchitecting of business processes, and convergence of a number of business functions and existing programs. In other words, transformation is hard and is not for the faint of heart. Therefore, executive engagement is critical to get the program going, funded, and a high profile internally. The good news is that CPG/F&B companies have slightly higher IX engagement from executives than industrials more generally.

However, top-down alone doesn't lead to success. Active engagement from the top is a necessary but insufficient factor. IX Leaders morph their programs from "top-down" to also be "bottom-up" to ensure adequate subject matter expertise and buy-in. For example, IX Leaders are more inclusive in the staffing of their IX teams. IX Leaders are especially more likely to include Engineering, Supply Chain, Operations/Manufacturing, and Quality personnel on the program teams.





Consumer Goods/Food & Beverage companies are typically NOT following this best practice. They are inclusive but based on what IX Leaders are doing; they are including more of the “wrong” people. Given the industry’s customer-experience transformation focus, it seems predictable that CPG/F&B would have significantly more participation from Sales and Procurement and Logistics. But they are not staffing sufficiently in Operations/Manufacturing, EHS, Industrial Engineering, IT, and Quality compared to other industrials – never mind IX Leaders. Plant personnel often view the statement, “I am from corporate, and I am here to help,” with trepidation. IX should not be something you are doing TO plant personnel; it should be something you are doing WITH plant personnel. Inclusion helps with buy-in. And, buy-in helps rollout when plants must fund the deployment of IX Program solutions, which is the norm in CPG/F&B.

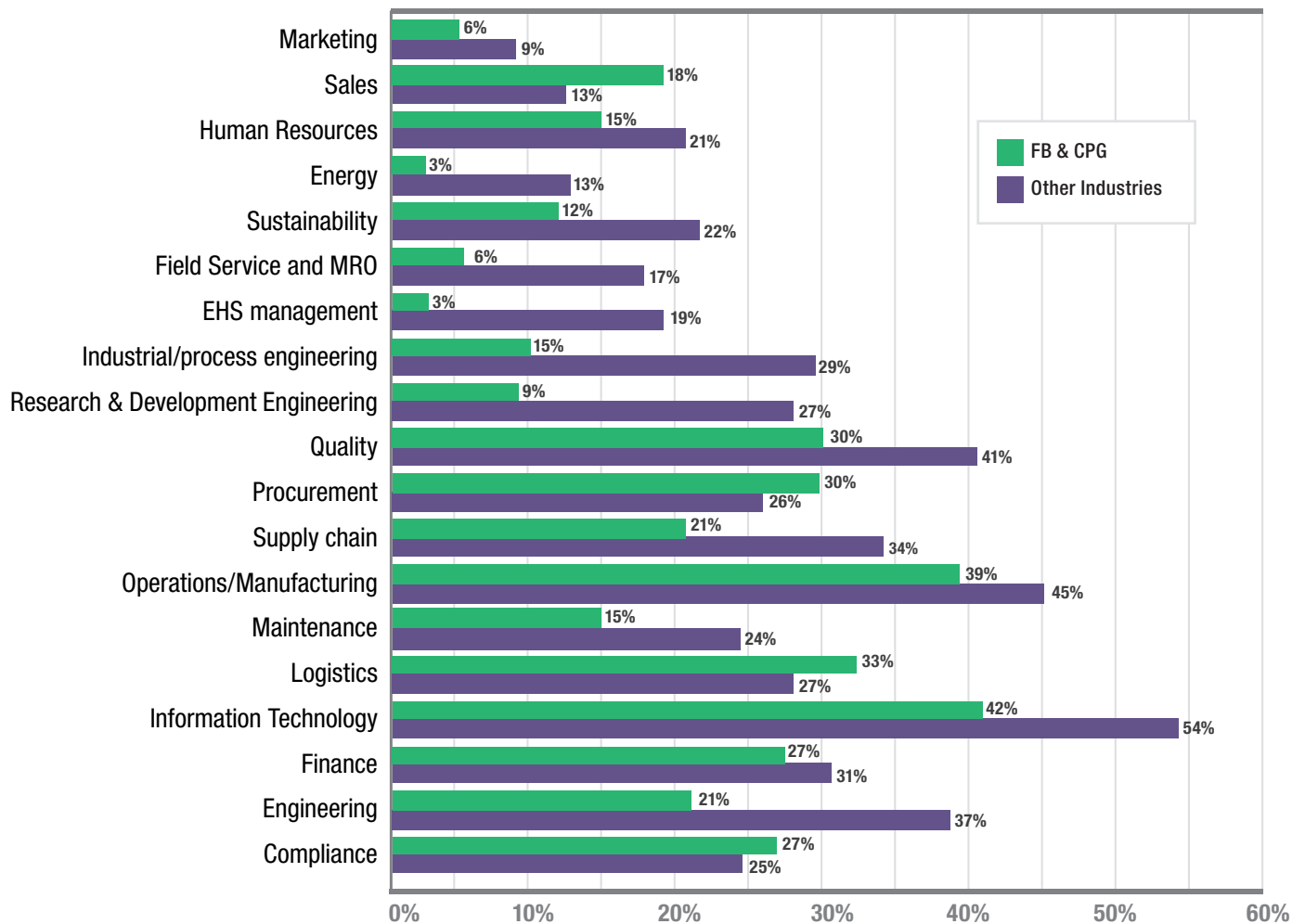


FIGURE 7 - Functional leaders included in the IX program teams

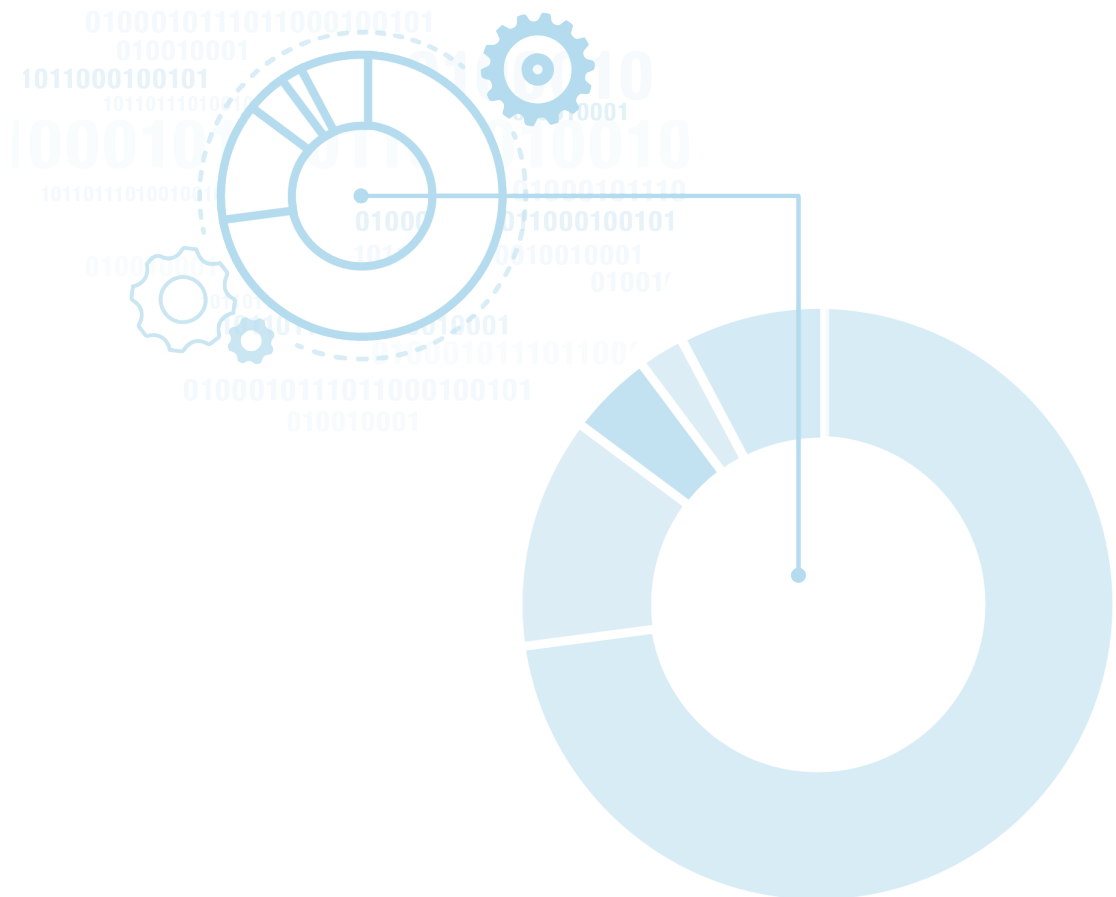


LNS Research has found that it is not about just “inclusion,” but it is about increasing the Subject Matter Expertise (SME) on the team. Plant personnel know the problems and often have hypotheses regarding solutions. The underrepresentation by these “technical/business” functions is leaving the average CPG/F&B team domain expertise challenged.

Further, IX Leaders have learned to build expertise internally around a wide range of technologies. It is not good enough to find a technology partner, but internal competency must be built over time. IX Leaders were generally TWICE as likely to have built deep expertise around each of 14 technologies (Data Lakes, Cloud, AI/ML, etc.) when compared to Followers. In fact, IX Leaders have found that deep understanding of operations and technology is critical to success. IX Leaders are THREE times more likely than Laggards to have a program head with a deep understanding of:

- OT generally
- Company’s strategy and business objectives

Clearly, the success profile for IX Program heads is increasingly oriented toward domain expertise.





CPG/F&B are not yet building the same level of expertise internally. CPG/F&B are less likely to be building the internal expertise needed in all 14 domains when compared to industrials generally, which would, of course, be lower than IX Leaders specifically. A full 40% of companies report that they have not built expertise in any of these 14 domains.

Does your company have expertise in these technologies?

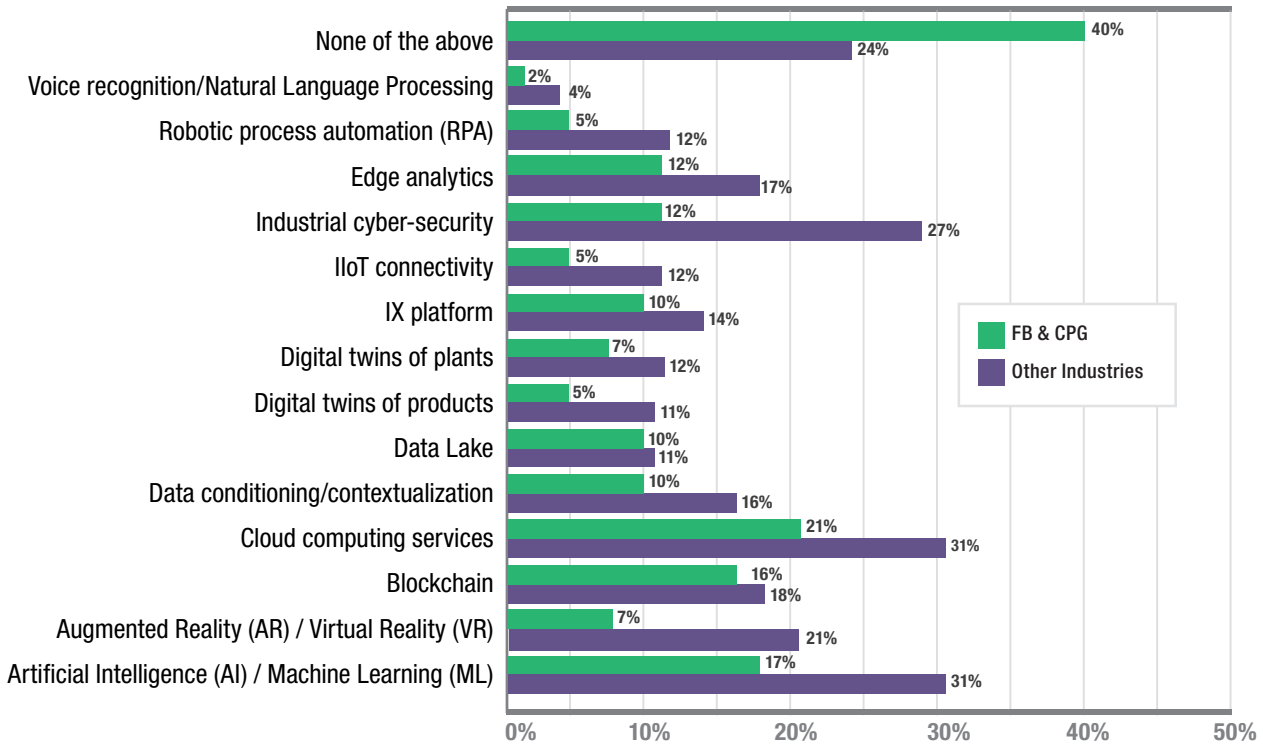


FIGURE 8 - Expertise Technologies



# Impact of IT and OT on IX Program Success

When we look at the role of existing Operational and Information Technology (OT & IT), the message is 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-nine percent of IX Leaders report having common OT – Manufacturing Execution Systems (MES)/Manufacturing Operations Management (MOM), Enterprise Asset Management (EAM), historians, automation, quality systems, etc. – across all or most major systems and plants; 68% more often than Followers. IX Leaders are also TWICE as likely to rate their OT systems as best-in-class across most major domains. IX Leaders are 77% more likely to report they have best-in-class ERP rolled out widely across their company.

CPG/F&B companies trend below the average industrial in terms of their OT systems. They have less commonality and are more likely to have a wide variation in their OT systems with uneven performance. In other words, CPG/F&B companies are well behind IX Leaders in OT.

The trend continues with Business Systems. IX Leaders again rate their business systems/enterprise resource planning (ERP) systems more highly and as having more commonality across plants than Followers. As an industry, Consumer Goods/Food & Beverage companies are more aligned to Followers than Leaders.

LNS believes improving OT systems and infrastructure could be a key transformative opportunity for CPG/F&B companies.

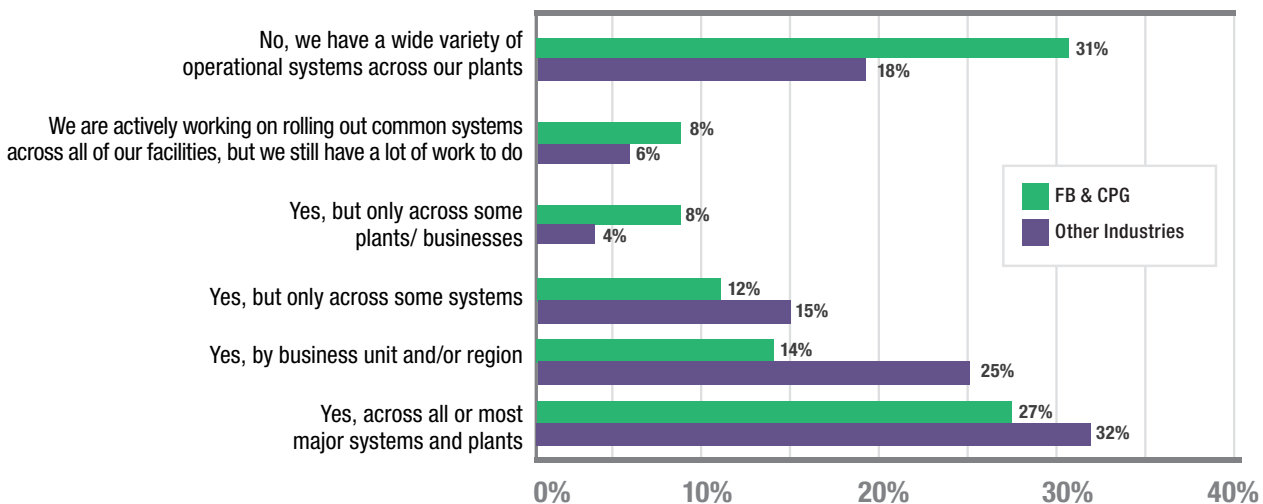


FIGURE 9 - Common Operational Technology (OT) systems (DCS, MES, MOM, SCADA, APM etc.) in plants

## The Missing Link: Advanced Digital Technologies

IX Leaders are much more engaged in EVERY technology we asked about. Of the 14 total “emerging” technology choices offered, IX Leaders were dramatically more likely to be engaged in all 14 technologies. Leaders were **at least twice as likely** to have already engaged in **each** of five of 14 of these technologies. IX Leaders are investing in five technologies compared to two for Followers. When we drilled into IX and IIoT technologies, we again found that IX Leaders were notably more engaged in 11 of 11 technologies queried (for example, AGV’s, cobots, smart wearables, IIoT enabled edge devices...). All in all, IX Leaders were deploying 170% more sets of technologies.

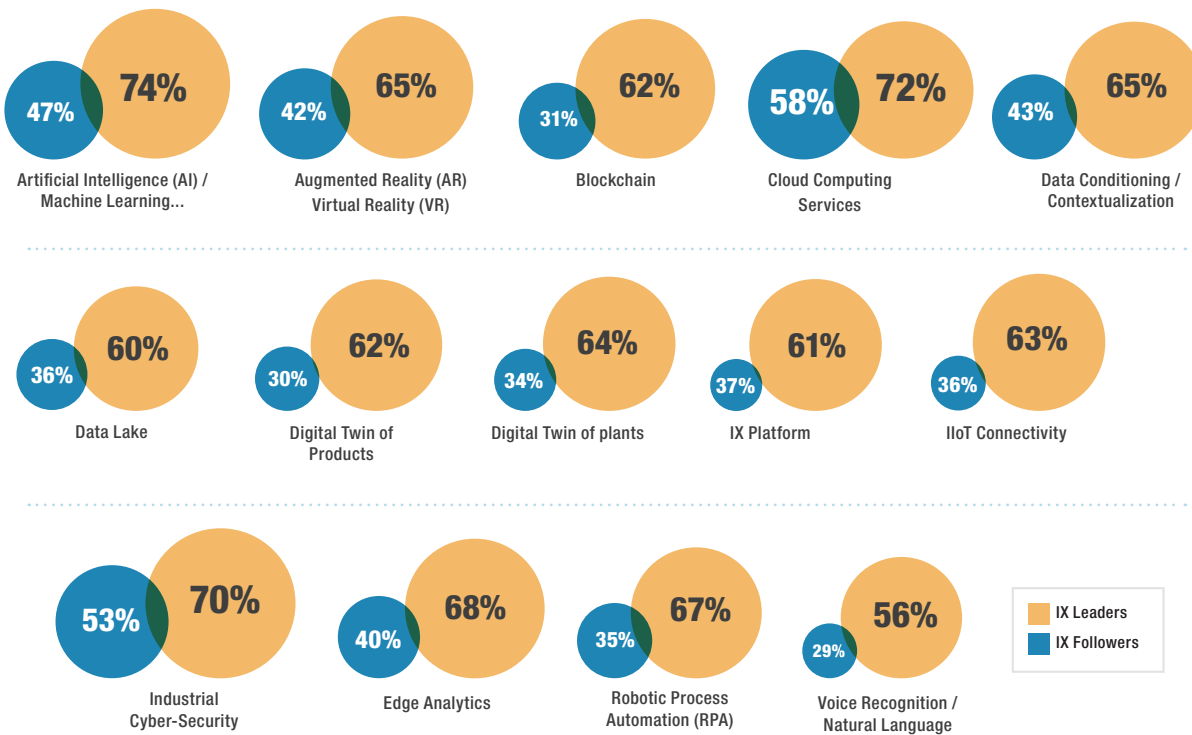


FIGURE 10 - Emerging technologies your company implemented or planned



CPG/F&B companies were significantly more circumspect in their technology engagements. In fact, the industry almost seems reluctant to engage in the “hot” new digital technologies. CPG/F&B is way behind in deploying IX/IIoT Platforms, AI/ML, and data lakes to name just a few. In many ways, these technologies are the heart of IX, and IX Leaders have proven the value in their deployments. **The industry's failure to engage widely contributes to the industry's failure to improve its financial performance with IX.**

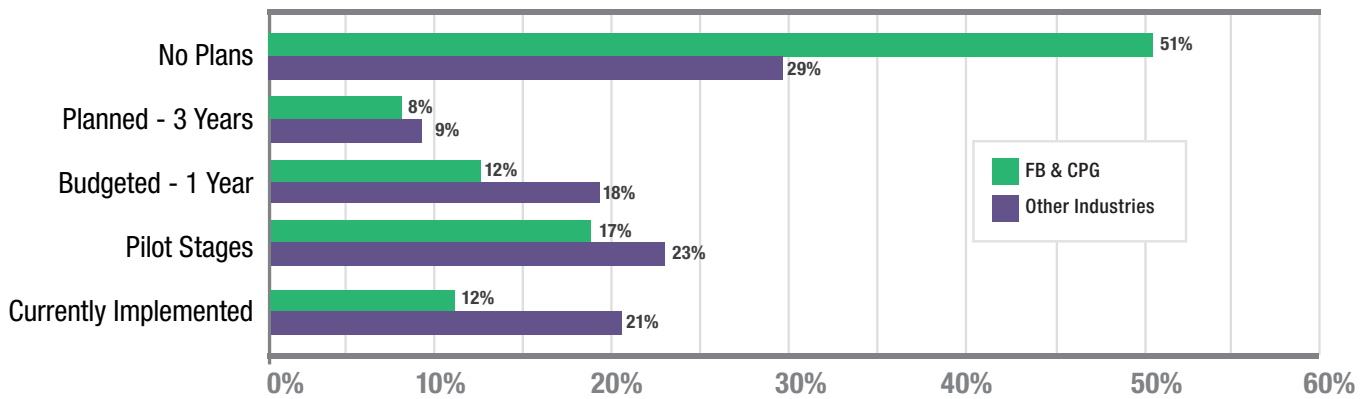


FIGURE 11 - Emerging technologies implemented or planned - IX Platform

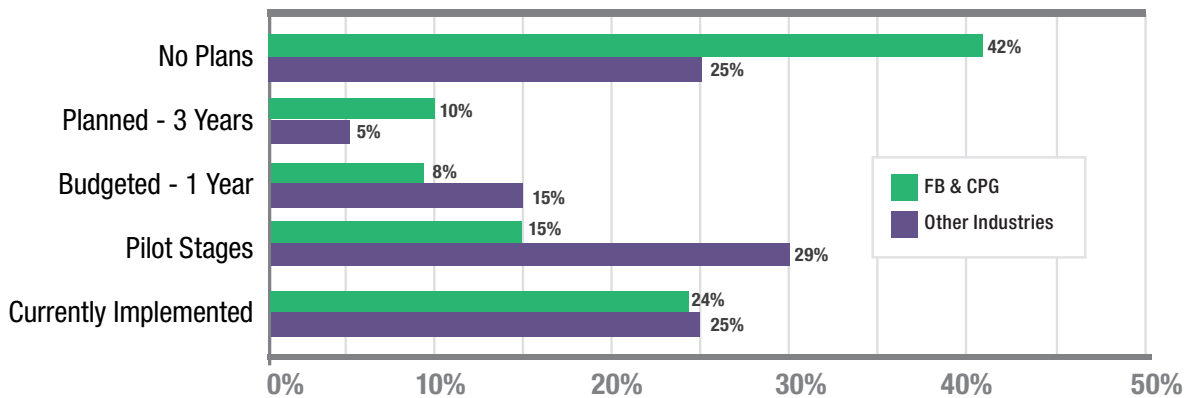


FIGURE 12 - Emerging technologies implemented or planned - Artificial Intelligence (AI)/Machine Learning (ML)



## Questioning the Industry's Commitment to IX

In 2019, we identified **4 organizational disconnects in IX** that led us to conclude that many programs were being established without a real commitment to their success and were headed to stagnation or outright failure. We call these programs “Zombie Programs” because they are the walking dead.

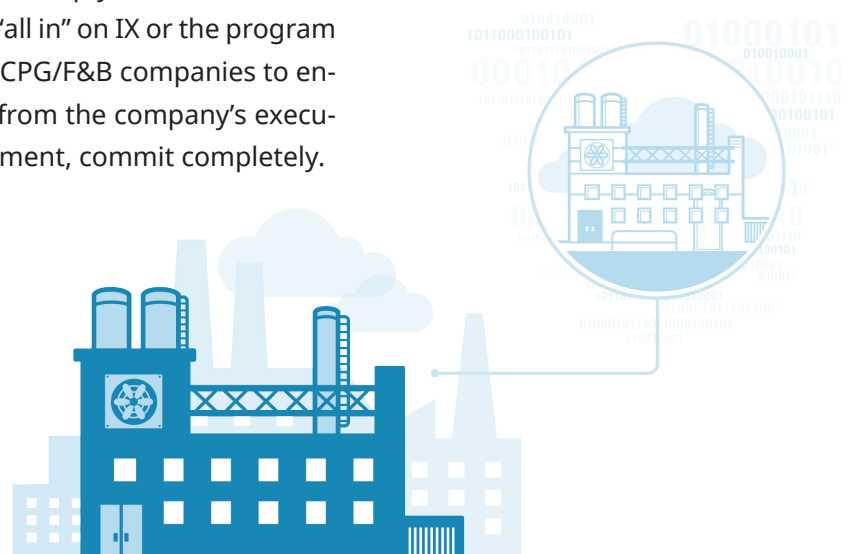
Given the depth of the data, one has to question the industries' commitment to Industrial Transformation (IX). The budgets are small. The technology exploration is limited. The scope of the programs is tight. Zombie programs abound. It appears that CPG/F&B companies need to “Get Real” and decide if they are committed to IX or not. Transformation is not easy and half-hearted engagements typically end in failure.

This is especially problematic because of **The Power of More™**. The single most powerful finding of all the LNS Research's work on IX Programs is that Leaders are doing more in every direction. IX Leaders are:

- deploying 170% more technologies
- executing a more expansive functional scope and strategy
- encompassing greater breadth on their IX Program teams
- reaching out to both customers and suppliers
- getting data from more sources and making it available to more roles across the corporation
- jointly funding more initiatives/solutions

Followers are always planning to close some of the gap sometime in the future.

From a Process perspective, it is critical that CPG/F&B companies develop a strategy assuming success rather than a “dip your toe in the water” program. To be blunt, industrials must be “all in” on IX or the program will stagnate. LNS Research would not advise CPG/F&B companies to engage in IX until they have a real commitment from the company's executive team and when they do have that commitment, commit completely.





# Conclusions and Recommendation: The Time is Now

## For the “C Suite”

The research is compelling: Industrial Transformation (IX) is working. It's clear that many manufacturers – including many CPG/F&B companies – are finding step-change improvements in the form of incremental revenue opportunities and cost savings. Organizations that don't act now will fall behind.

But remember to go big or go home. The Power of More™ indicates a half-hearted commitment is a recipe for stagnation or outright failure. Be ready to commit your best talent and serious budget or wait until you are. Culture, communication, and inclusive teams are key when you are ready.

## IX Program Lead

LNS has three recommendations (in multiple parts) for the IX Program head:

1. Make sure you understand the REAL commitment to IX in your organization. Focus on understanding the “C suite's” views and, if there are issues, work them hard.
2. Be sure to follow the best practices that LNS Research has identified around IX. The Best Practices are known, and execution of those practices leads to notable financial performance improvement:
  - a. Remember the Power of More™, so be sure to go wide in technology and functional scope.
  - b. Be sure to include a focus on the manufacturing where the “best bang for the buck” use cases are delivering.
  - c. Build your IX team inclusively with extensive and regular engagement from plant managers and personnel.





3. LNS Research has found that technology doesn't drive success; instead, success is the result of process changes empowered by collaborative technologies. Therefore, IX must also include building on your OT and IT solutions to re-architect the way you do business. It may not have the excitement of bleeding-edge technologies, but it is fundamental to IX success. If your organization has been slow to adopt new technology and does not have a good IT/OT foundation, that is the place to start. There is no workaround: a solid systems foundation cannot be skipped.

### For Plant Managers

Assuming your plant is already successful at achieving today's goals, further success for your operations and your career may require becoming the innovation leader that delivers that step-change improvement early. The funding model means you are the ultimate arbiter of success of the IX Program, so use that clout to engage early ensuring the program is delivering value for your specific operation.

**IX NOW** SIMPLY REQUIRES  
the application of identified  
best practices to your specific  
**ENVIRONMENT &  
CULTURE.**





## Appendix: Demographics

The 2021 edition of the IX Readiness survey was taken by more than 300 business and IT decision-makers, including managers, directors, VPs, C-suite executives across several functions in manufacturing companies. We sought responses from across the discrete, batch, process, and infrastructure industries. Half of the companies were from Europe and the other half were from North America and the Asia/Pacific regions. We translated the survey to French, German, and Simplified Chinese to accommodate survey takers from Europe and Asia. The survey includes more than a hundred questions on a company's IX Program's objectives and challenges, budget, scope, key metrics, organizational culture, and technology resources.

We had respondents from all major sectors of the CPG/F&B industry.

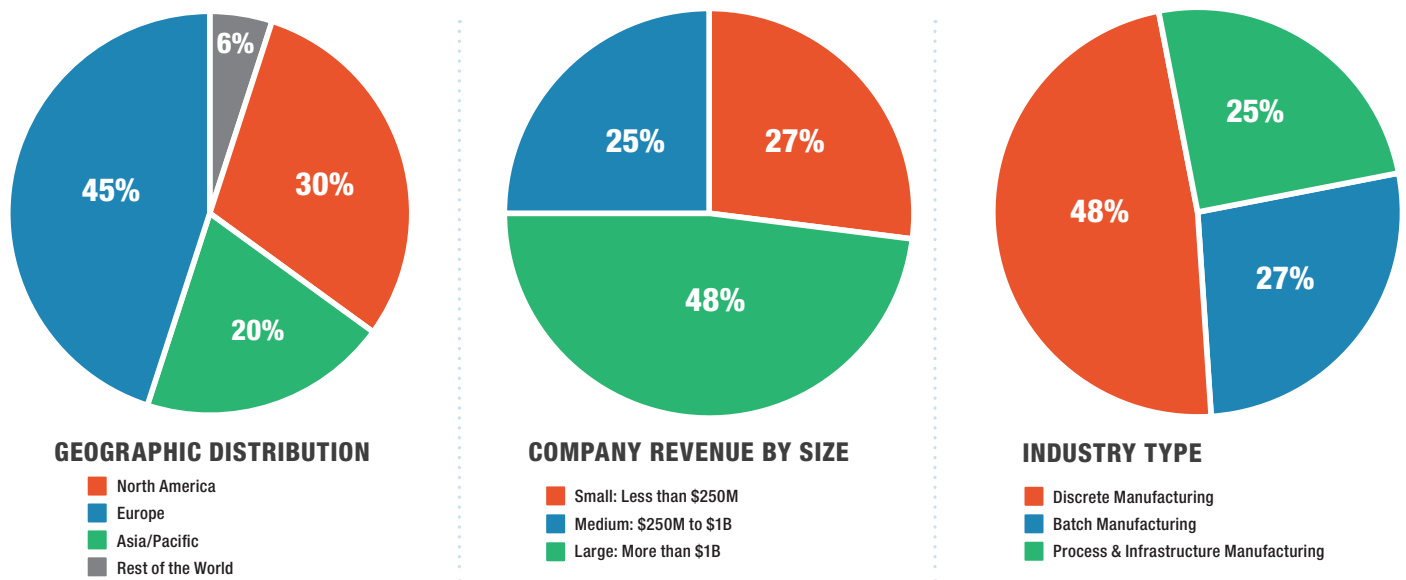


FIGURE 13 - Survey Demographics



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