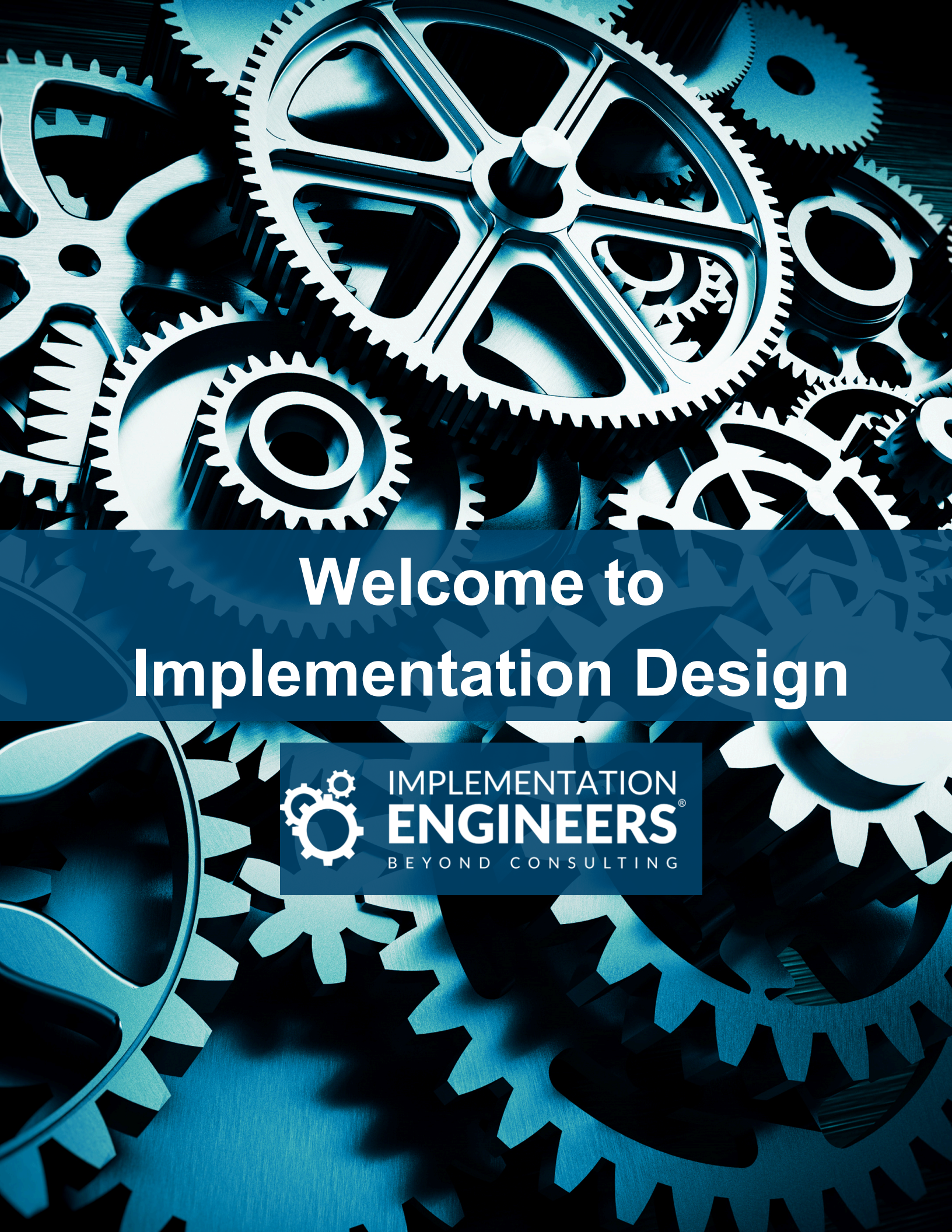
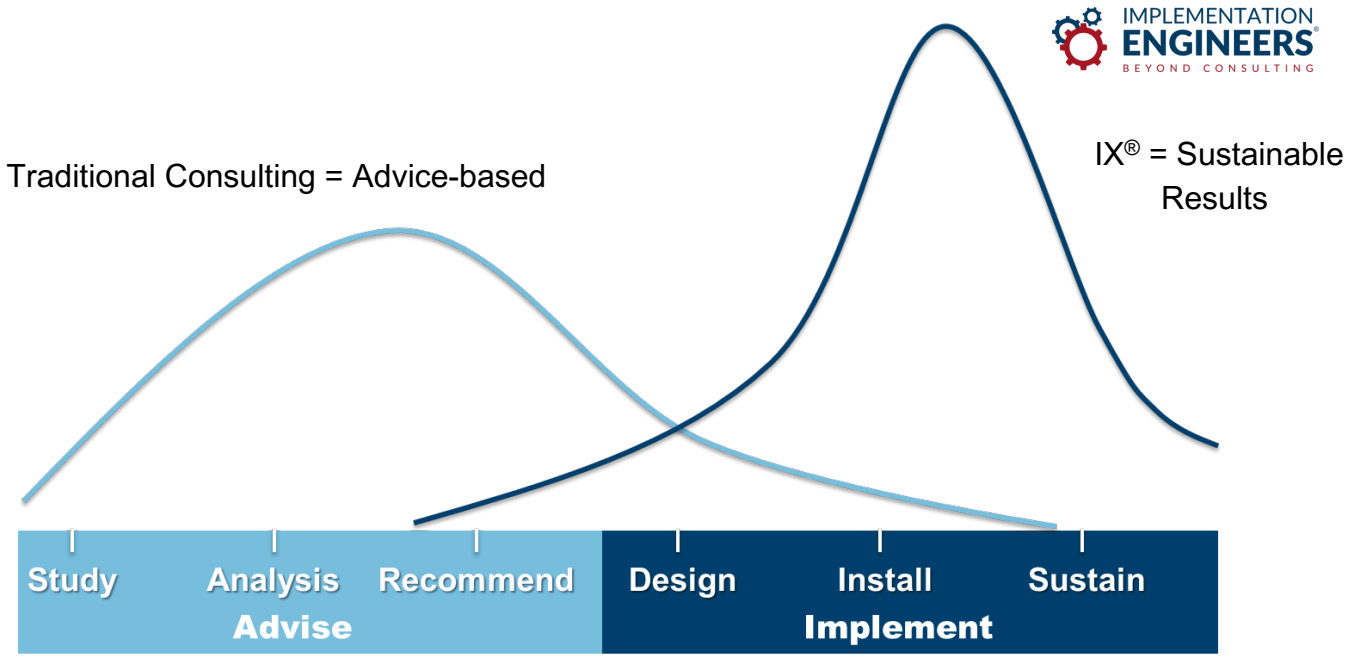


Welcome to Implementation Design

IMPLEMENTATION ENGINEERS®
BEYOND CONSULTING

Introduction to IE

Implementation Engineers (“IE”) is not a consulting or advisory firm. We are an Implementation Execution (IX®) firm. We work with organizations that are past advice. We design and implement what our customers need done to achieve sustainable value. All we do is IX®. The question becomes “Implement what?”



Founded in 1963 as a part of Ingersoll Milling Machine Company, we work across 16 business sectors to support our customers’ implementation needs. Over the decades, our ability to deliver value has been demonstrated across the entire operational value chain. We identify value gaps in processes, people, and technology and seamlessly integrate solutions to tackle the most complex implementation challenges.

Implementation Design

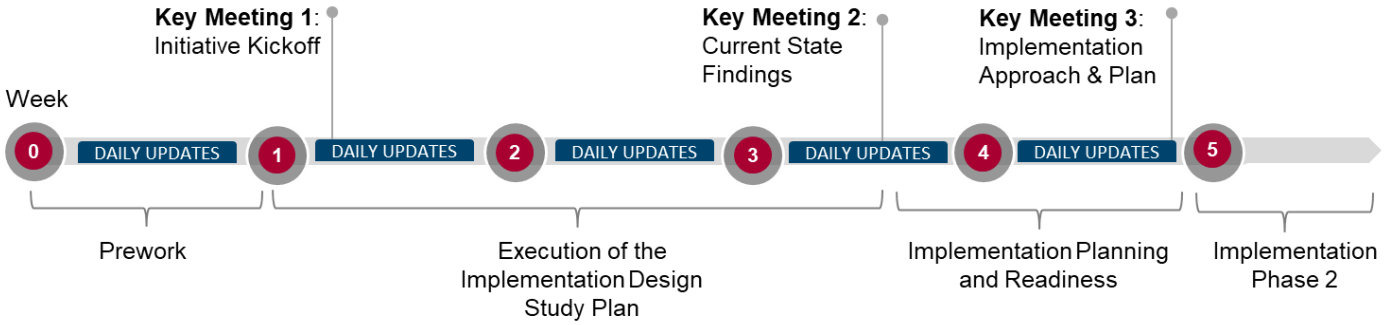
The Implementation Design phase is typically the first of IE's multi-phase engagement process, and includes a granular analysis of the current state, identification and prioritization of opportunities, and an integrative Implementation Approach. This two-to-four week process is not a typical "consulting analysis." It is fact-based, pragmatic, and conducted on the floor with your people rather than in a conference room.

This initial Implementation Design phase is necessary when "Implement what?" is not granular enough to action. Implementation Design identifies improvement opportunities across operational processes, the organizational and cultural component, and technology and information. These opportunities are transformed into a detailed project plan designed to accomplish the program's performance objective. Ultimately, the goal of Implementation Design is to align stakeholders around the critical few things that will drive the desired value and change, how they will be actioned and how the improvement events will be resourced.

Implementation Design

A thorough Implementation Design effort is most typically preferred with our clients as a rapid low-cost way of ensuring an initiative has a well laid project plan. The customized scope is co-designed with our client, and details which facility or facilities and focus areas (i.e., workstreams and studies to be conducted) will be included. Depending on the breadth and complexity, this phase can range from two-to-four weeks generally. Lastly, the Implementation Design phase tends to be less obstructive for an operation and its personnel given we are analyzing how processes currently run.

The Implementation Design Phase includes a custom study plan and multiple stages.



The Voice of the Customer	Process Gembas	Data Analysis	Implementation Planning & Readiness
Conduct Focus Interviews with key stakeholders and process owners to ensure we understand your voice, current challenges, and business strategy	Work side-by-side with your team members to walk the process, understand communications, meetings, data collection points, systems, and tools	Analyze historical data to understand trends, relationships, root causes, and value stream gaps. Validate through shop floor observations and data capture	Co-design the improvement approach with your teams, complete with timing, resources and return on investment

Implementation Design in Action

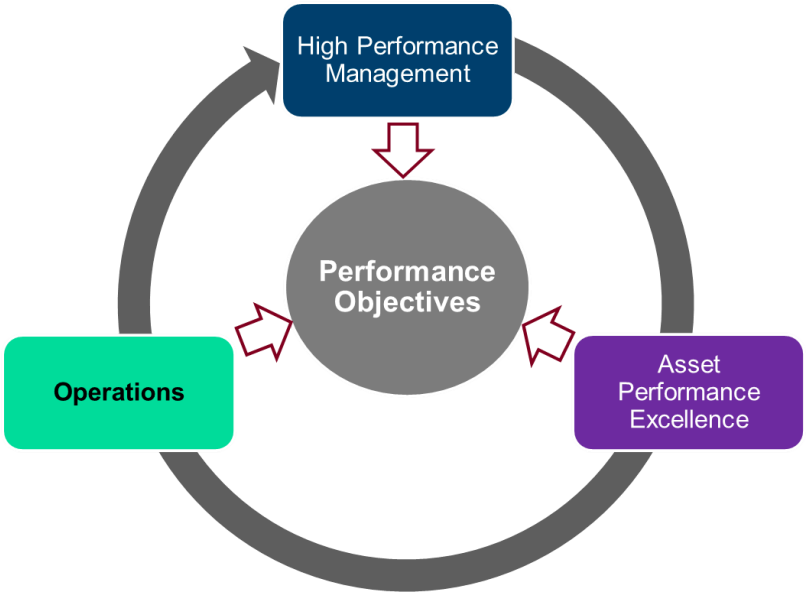
Our client, a private label pet food manufacturer with facilities across the U.S., engaged with Implementation Engineers in Implementation Design at one of its flagship sites responsible for manufacturing extruded kibble products. This client recognized that implementation execution support would be critical to achieving the company's performance objectives. Through Implementation Design, we partnered with our client to codevelop a detailed roadmap to improving Overall Equipment Effectiveness ("OEE") and to increase throughput. Focus areas of this phase included:

- Production Operations
- Management Operating Systems ("High Performance Management")
- Maintenance & Reliability ("Asset Performance Excellence")

Integrated Workstream Structure

High Performance Management is key to provide the necessary tools and training needed to build a robust management system, which allows for a structured platform for planning, executing, analyzing, and improving site capabilities

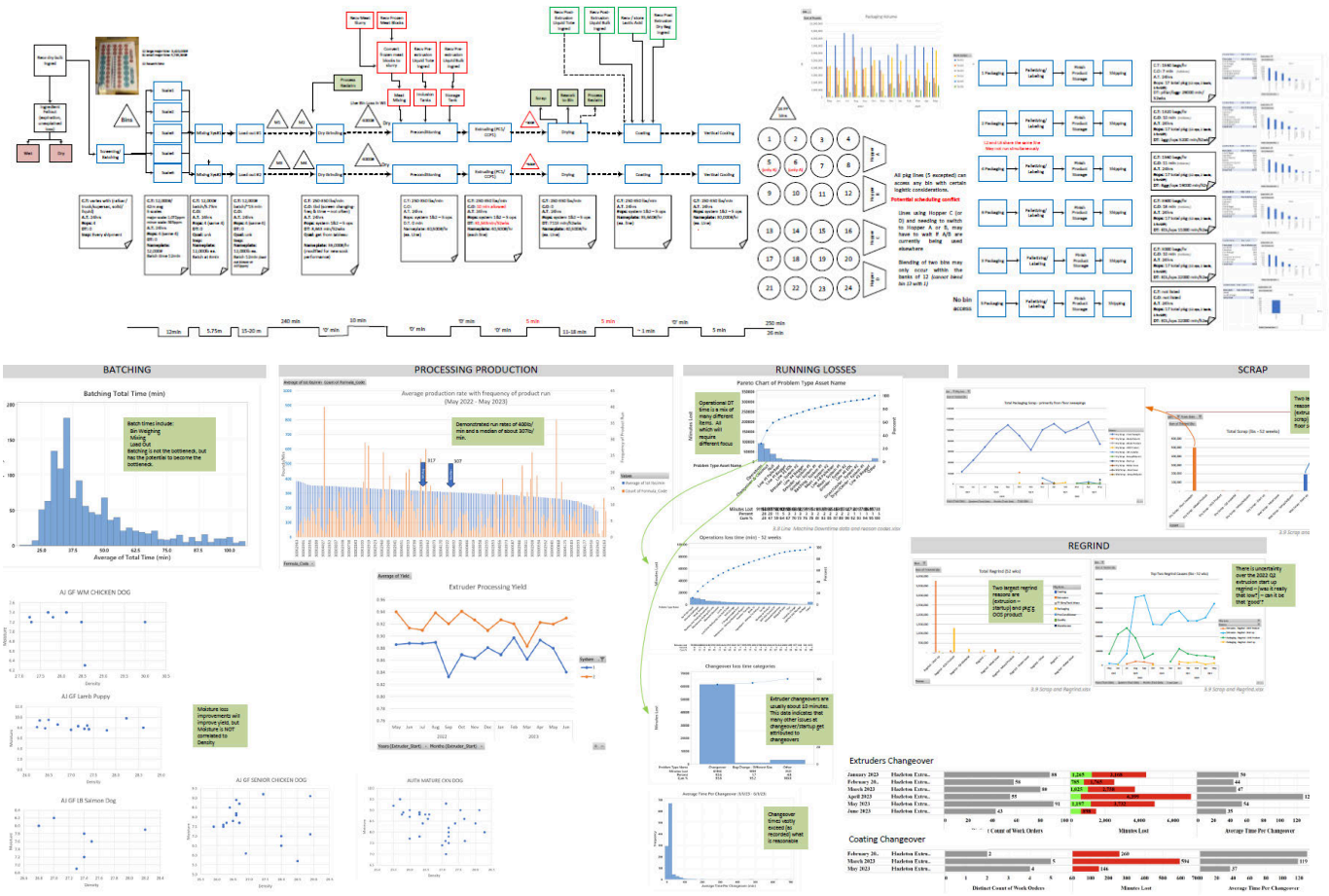
The primary focus of Operations is to create the ability for material flow by minimizing Non-Value-added activities, optimizing inventory movement, reducing the creation of defects, while providing production visibility



Asset management focuses on gaining optimum sustainable lifetime value, availability, productivity and Overall Equipment Effectiveness ("OEE") from all the manufacturing assets

Implementation Design in Action

Implementation Design Output
Operational Gaps Identified



During the Implementation Design phase, we developed end-to-end Value Stream Maps (VSMs) and capacity charts comparing cycle times to takt times. Key constraints were identified as well as subsequent process steps that were at risk of not meeting the future takt as demand was expected to increase. The data during the Implementation Design phase was gathered from a myriad of sources, including historical data, forecast demand data, manual observations and data collection, and personnel interviews. These various sources informed a comprehensive diagnosis of the current state operation and the anticipated challenges to achieve future state demand. From Implementation Design, we found significant opportunity to improve production volumes with current level of resources, specifically around reducing setup and changeover times and reducing the levels of scrap and rework.

Implementation Design in Action

Implementation Design Output
Management Operating System Gaps Identified

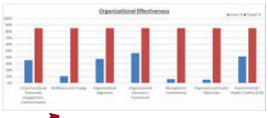
During Implementation Design, we found that KPI's are not cascaded to the lowest levels to assure alignment on the floor and leads and supervisors are not fully able to drive improved performance. A common thread revealed during the focus interviews was a breakdown in communication in the middle at the plant leaders and supervisor levels. We designed High Performance Management (HPM) to focus on the operational communication factors. DILOs ("Day in the Life of") were conducted to understand the reality of a typical supervisor's day, which turned out to be very different than what client leadership viewed as ideal. We found that supervisor routines were very reactive and "firefighting," not coaching and leading people to be able to solve problems. We focused our HPM around structure, people and processes, and behaviors to put in place two-way communication. A good example of this two-way communication occurred when we observed shift huddles and handovers. In the current state, line leaders just regurgitated about what to do and what issues there were. There was little to no incorporation of operator feedback.

Implementation Design in Action

Implementation Design Output
Maintenance and Reliability Gaps Identified

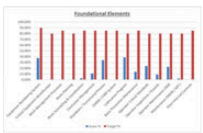
1 Objective

Safely gain optimum sustainable lifetime value, availability, productivity, and overall equipment effectiveness from physical and manufacturing assets.



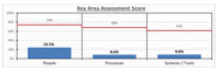
Overall Score for Organizational Effectiveness 26.1%

Clear vision, commitment to continuous improvement, effective communication, collaboration, training, development, and resilience are vital to enhance organizational alignment, resilience, and change.

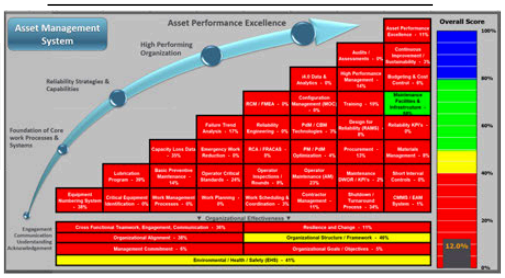


Developing and improving the foundational elements is necessary to establish and maintain a robust asset management program.

Overall Score for Foundational Elements 13.0%



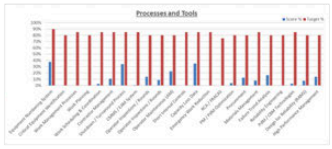
The score of 12.0% is in the "Reactive" range and key elements are not far from gaining an increase by developing a plan to gain significant improvements in those areas moving them through "Emerging" & into a "Proactive/Excellence" range.



Hazelton falls in the lower reactive range with a 12.0% ranking in the 43-element APE model, indicating the need for improvement. Despite ongoing positive activities, productivity and cost results are lagging, highlighting the importance of training and development while aligning and prioritizing strategies to improve performance, cost, and productivity

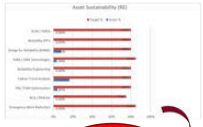
Accomplished by:

Implementing and institutionalizing a strategic, fully integrated, array of comprehensive improvements in technology, practices, and organizational culture to management, engineering, operating, control and maintenance processes.

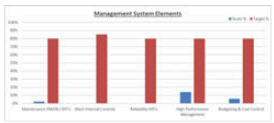


Utilizing Asset Management processes and tools for managing work enhances consistency and maturity while minimizing ambiguity. Adhering to established procedures promotes ownership and clarity, leading to an increased understanding in maintenance work management & performance reducing MTTR.

Enhancing MTBF (Mean Time Between Failure) is crucial for maximizing asset performance, longevity, and productivity, achieved through training and implementation of sustainable and reliable asset management processes.



Overall Score for Asset Sustainability System 3.2%

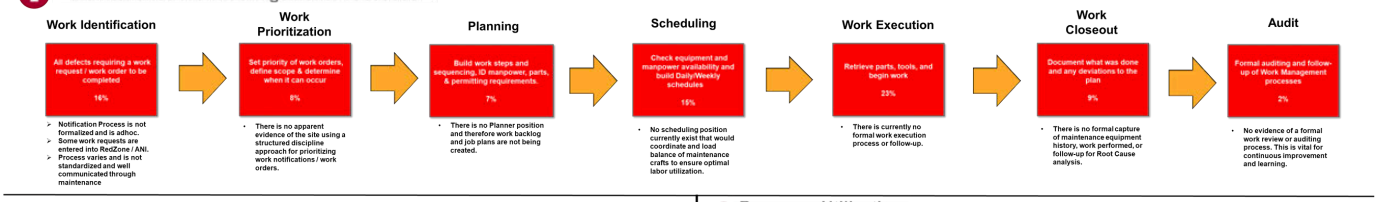


Several elements lack a strong and integrated High-Performance Management System (HPM), with leading key performance indicators (KPIs) to manage processes and drive behaviors and results.

Overall Score for Management System 4.4%

Reliability Centered Maintenance (RCM)

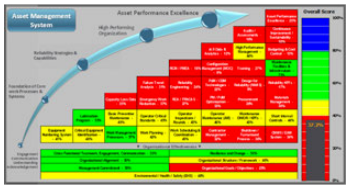
1 Maintenance Work Management Processes



During Implementation Design, we found that our client's maintenance program was fully reactionary. Proactive maintenance was not executed and an asset criticality assessment revealed significant risk for major system downtimes. Equipment and tool availability was driving significant inefficiency and downtime which had ripple effects throughout the organization.

Current State Results – Findings

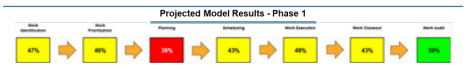
- Overall APE Score of **12%**
- Core Work Management Processes Score in the Low range indicated by Red.



Projected Model Results - Phase 1

- Overall APE Score of **37%**
- Improvements on Key Work Management Processes and Foundational Elements
- Top Elements are driven from improved foundation

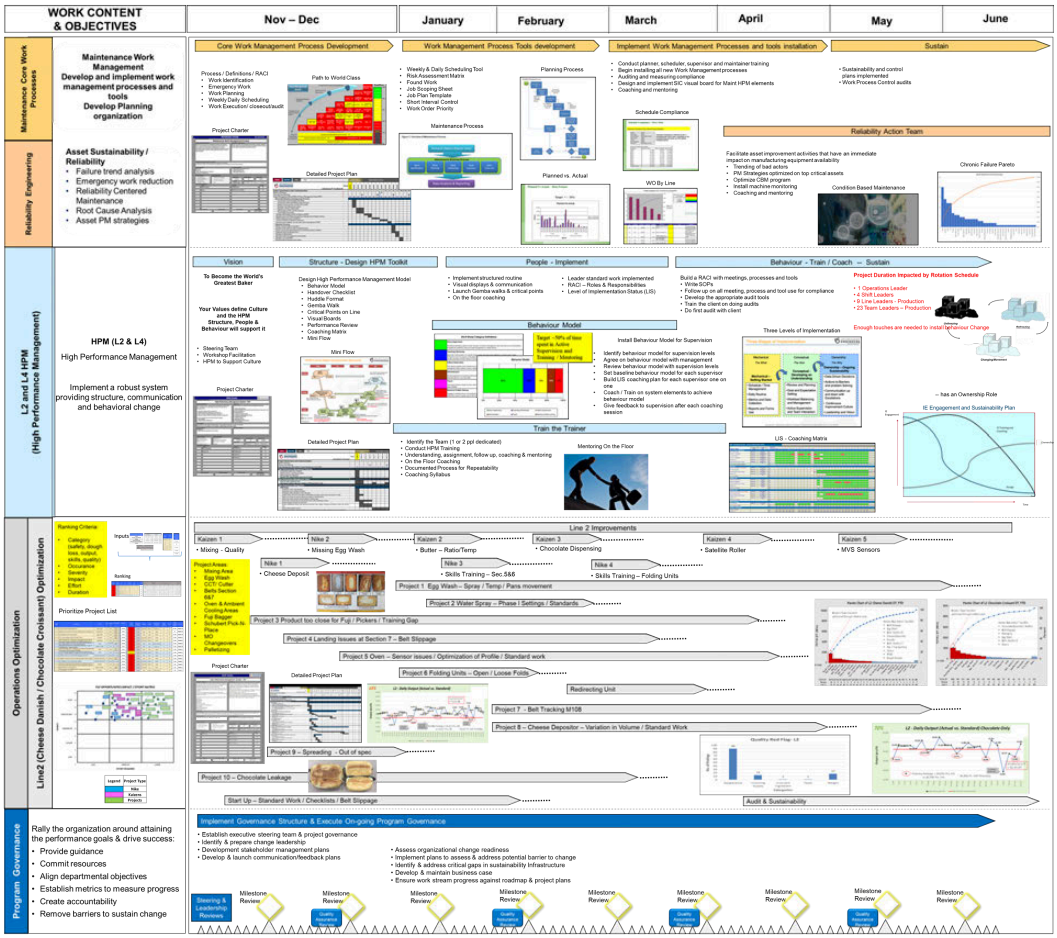
- Core Work Management Processes Score in the Low range indicated by Red.
- Current State - Overall Core Work Management Average Score of **11.4%**



- Improvements in ALL Key Work Management Process Elements
- Projected - Overall Core Work Management Average Score Increases to **45%**.

Implementation Design in Action

Implementation Design Output
The Implementation Roadmap



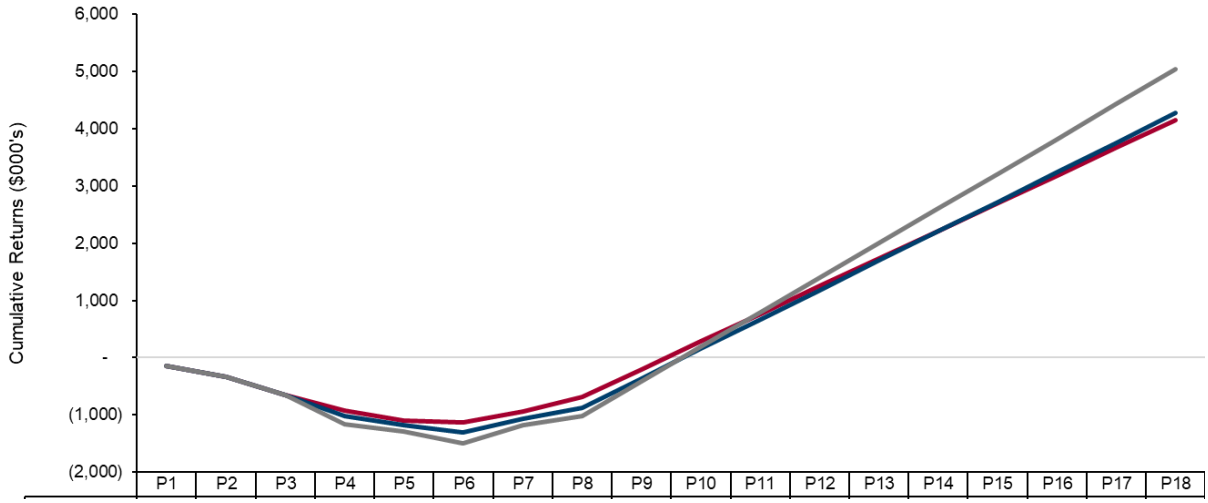
Implementation Design lays the foundation to achieving our clients' desired performance objectives. The plan is detailed and granular and all that is left is to implement. Some of the improvements identified during Implementation Design included:

- Reduce variation in moisture content allowing better control of water versus raw materials
- Improve product flow through processing area constraints
- Reduce product and material waste from start-up, production, and packaging
- Identify and improve critical equipment maintenance strategies
- Install basic core RCM maintenance work management processes and practices
- Institute basic root cause failure analysis and mitigation activities
- Decrease reactive maintenance run-to-fail culture across the plant
- Design/Redesign Key Meetings Design/Redesign (Shift Start, Handover, DWR)
- Implement HPM Tools (SIC, TOR, Escalation Process, Skills Matrix, Leader Standard Work, Action Log)

Implementation Design in Action

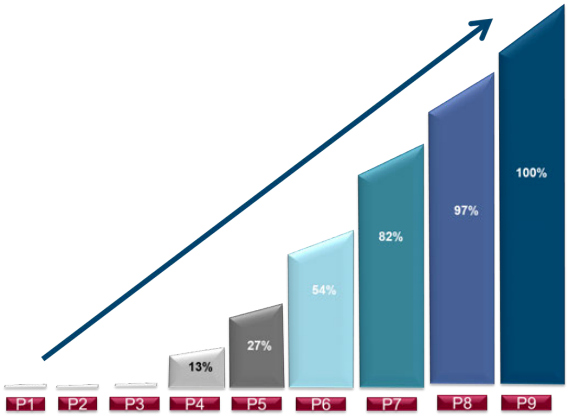
Implementation Design Output
Business Case

A key output of Implementation Design is the business case and return on investment. Implementation Engineers validates the value of the improvements for our clients. We are not in the business of making improvements where there is no value. Once the project starts, we track the benefits continuously to ensure we are on track and achieving the value promised.

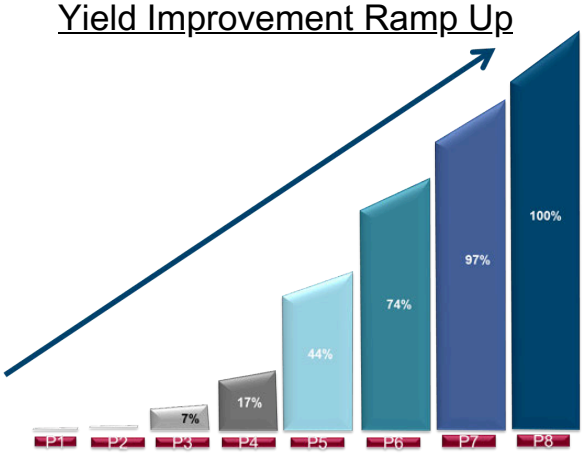


For our pet manufacturing client, the improvements were valued at $7.3M+ annually. The business case was compelling for our client, a 41% yield improvement from dry and wet scrap reduction and a 17% throughput increase.

Throughput Ramp Up



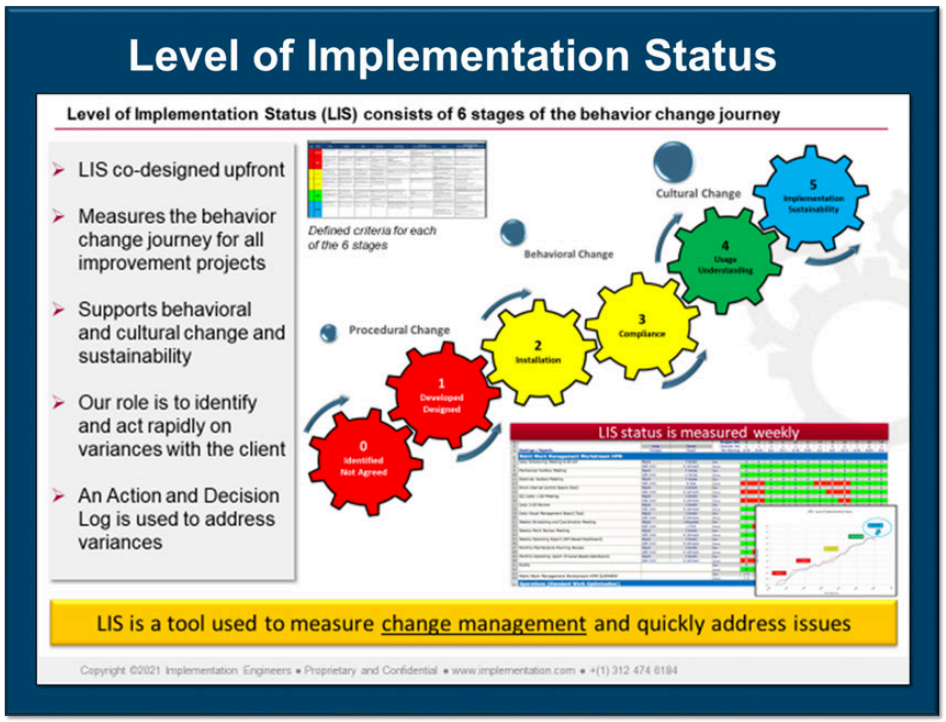
Yield Improvement Ramp Up



Implementation Design

Implementation Design Output - Performance Measurement

A critical component in the design of the Implementation Phase is an intentional plan for behavioral change. We have developed a Level of Implementation Status (LIS) tool that plans for and tracks behavior migration across six progressive levels over the course of the project, supported by planned coaching events for the involved stakeholders.



The Implementation Phase includes structured governance and quality reviews to ensure IX® delivers its intended results on time and on budget.

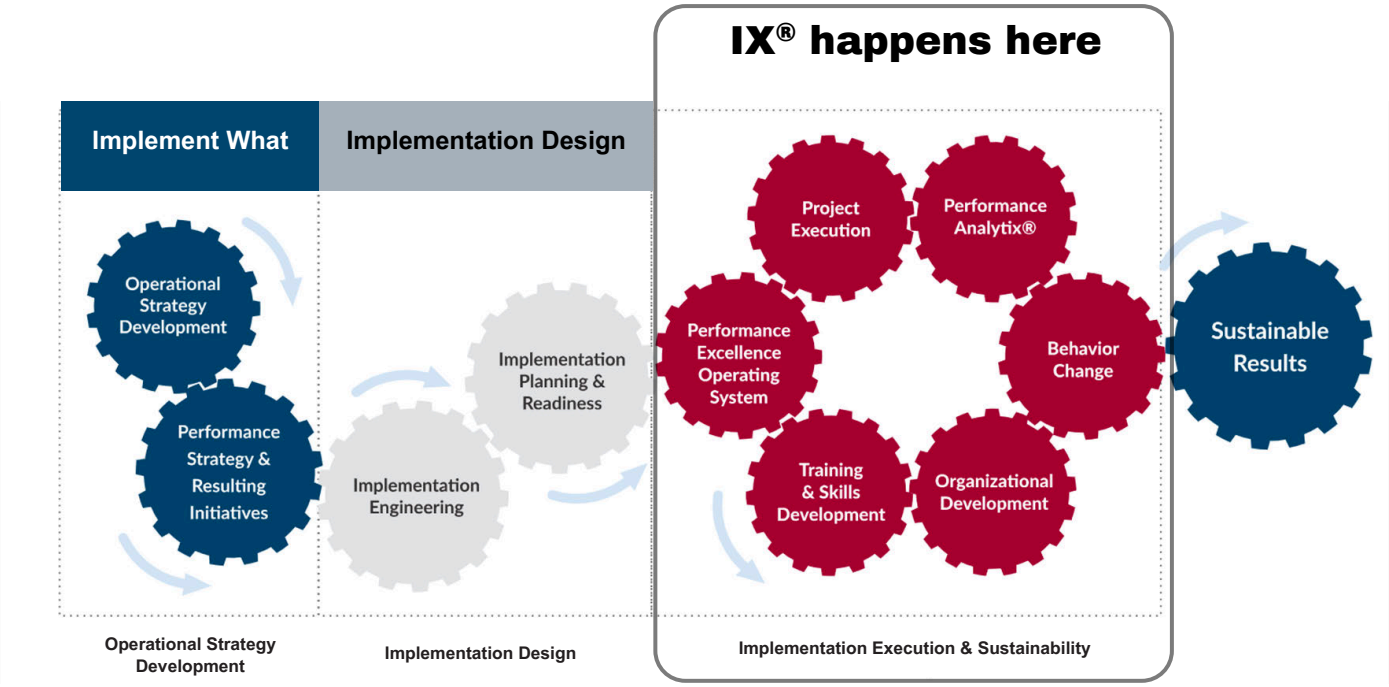
Structured Performance Reviews and Quality Reviews Ensure IX® Stays On Course

	Working Committee	Steering Committee	Milestone Meeting	Partners in Quality
Frequency	Weekly	Every Four Weeks	Every Eight Weeks	Every Eight Weeks
Participants	Site and Implementation Engineers team members	Client Leadership and Implementation Engineers team members	Client Leadership & Stakeholders and Implementation Engineers team members	Client project participants & Independent Implementation Engineers Executive
Purpose	Review metrics and progress to plan, address root cause process deficiencies, identify solutions, and implement corrective actions to drive better performance	Review metrics and progress to plan, and resolve variance issues raised by the working committee	Celebrate achievements, review metrics and progress to plan, address RC process deficiencies, identify solutions, and implement corrective actions to drive better performance	Meet one-on-one with client leadership and workstream sponsors to receive feedback regarding how well we are partnering with you to achieve your Performance Objective

Our Implementation Approach

We bring a structured, rigorous, disciplined, implementation approach - enCompass® - to produce a sustainable business result. Decades in the making and proven to work, enCompass® seamlessly integrates value gaps in processes, people and technology to tackle our customer's most complex implementation needs.

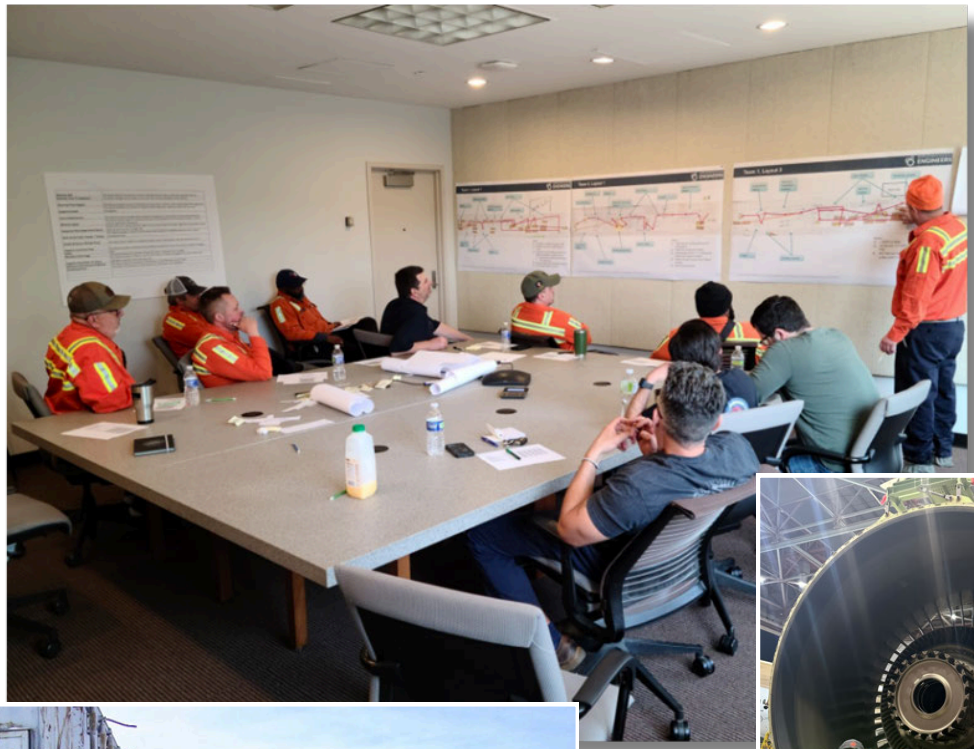
enCompass® Model



IX® is designed to deliver sustainable performance improvements, and the enCompass® gears represent what happens during Implementation to drive result that stick. Lastly, each program is jointly executed between IE team members and client personnel, and we measure the behavioral migration and learning taking place in order to truly move our clients.

Our People

People make the difference. With record growth over the last many years, we are attracting the best talent to meet our customers' needs. Our IX® experts have been in industry most of their careers and know how to work with your teams to get things done. With over 20 years experience on average, our people bring the experience, skills and capabilities needed to complement your organization to deliver sustainable results.

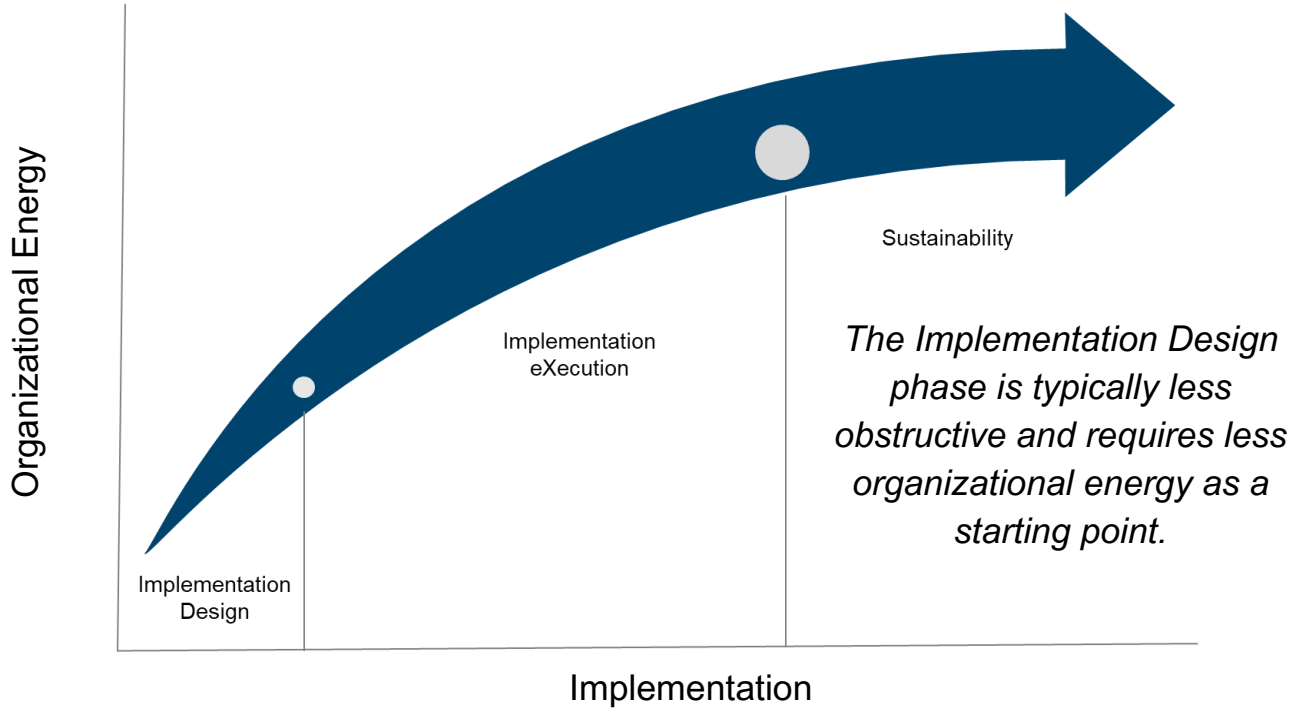


How IE Engages With Clients

IE engages with customers to determine Implement What in two ways:

1. We conduct Implementation Design when further definition is required of the current state condition and future state solution. While challenges are often understood in a general level, we develop a sound data-driven fact base and detailed execution plan, confident we are focused on the right activities.
2. When a client has clear, granular definition of what needs to be implemented and prefers to move straight to execution we call this “Straight to Work.” In this case, we mobilize resources against the scope and projects and provide execution horsepower to our clients to accelerate existing efforts.

The Transformation Journey



Implementation Design is typically a two to four week process, depending on scope and complexity. Implementation Execution typically ranges from one to six months, but in more complex and holistic transformation efforts can span one or more years. Our clients often ask, “What drives the timeframe for your projects?” The answer is two-fold: the rate at which the client organization can absorb the change, and the realistic time it takes to move your people behaviorally to a sustainable future state. Our process is designed to reach the future state in the most time-efficient manner possible while recognizing these two important considerations.

Let's Get Started