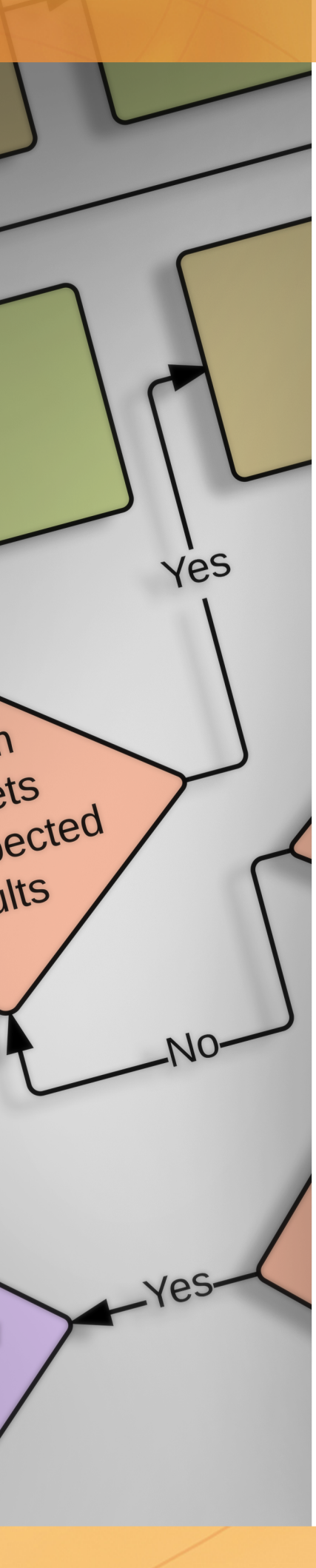
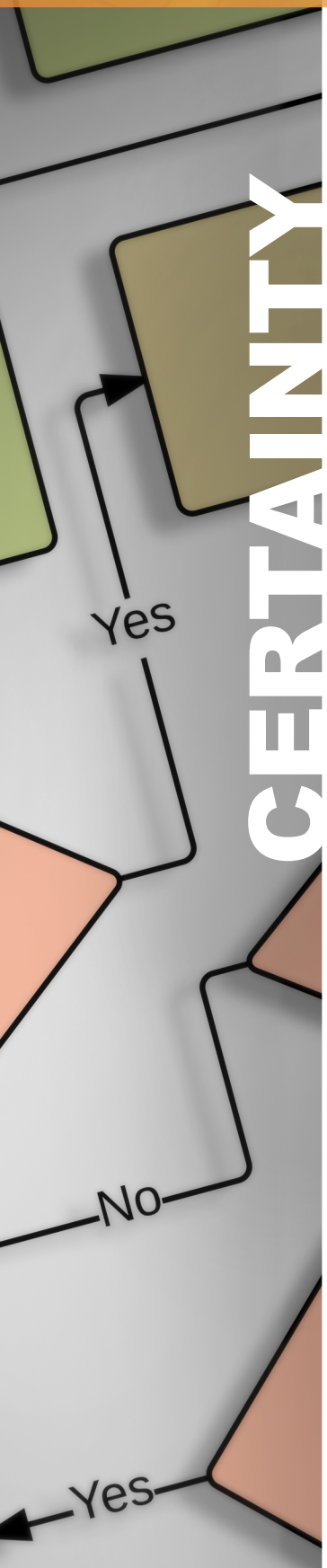


Using Certainty as a Catalyst for Achieving Market Advantage

invata
intralogistics



Introduction

When it comes to investing in a warehouse automation system, having the certainty required to make the strategic decisions that are best for a business can mean the difference between acquiring a cost center or investing in a competitive advantage.

Achieving Market Advantage Through Warehouse Automation

For companies dependent on omni-channel distribution, ecommerce fulfillment, or reverse logistics processing for maintaining their market standing, warehouse automation can be a highly strategic tool in achieving and sustaining market advantage.

When done properly, warehouse automation systems automate, integrate, and optimize the logistical management of material goods as well as the logistical flow of information pertaining to those goods in ways that maximize operational efficiency, while enabling proactive operational management.

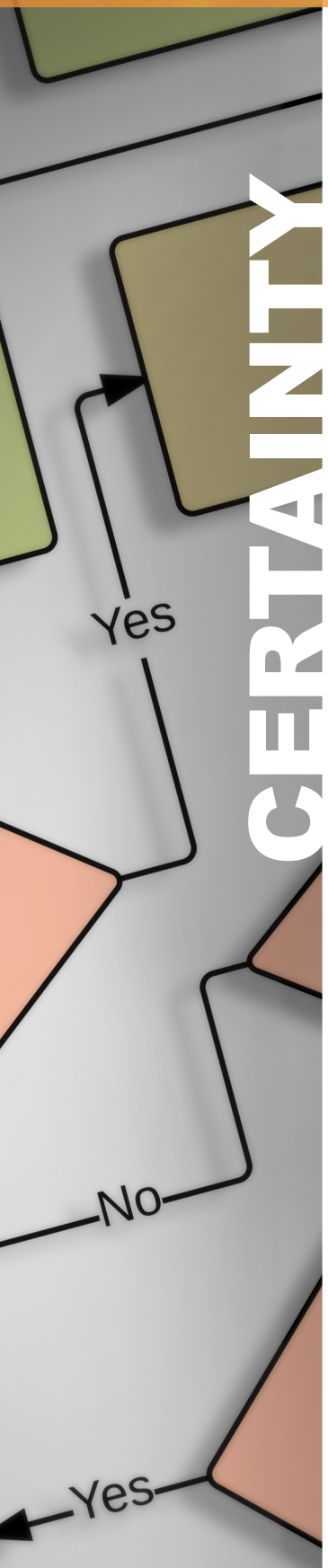
In doing so, warehouse automation systems utilize advanced technology along with sophisticated database and warehouse software and control systems to ensure constant analysis and optimization of an operation such that leaps in productivity can be achieved and consistently maintained.

These advances in productivity not only translate to lowered operational expenses, but to increased customer satisfaction as a result of faster, more flexible order fulfillment, enhanced packaging presentation, and near perfect order accuracy.

The Critical Need for Certainty in Warehouse Automation

The complexities involved in the design, implementation, and commissioning of warehouse automation systems require a methodical orchestration of engineering disciplines and core competencies as well as a meticulous integration of disparate technologies into one cohesive unit.

Given that, when it comes to the nuances of automating or modernizing a distribution center, fulfillment center, reverse logistics center, or 3PL, there's no tolerance for guess work.



To achieve the productivity improvements that are needed to offset the kind of capital investment modern automation systems require and to be able to secure and maintain market advantage, certainty becomes a key criterion in both a company's strategic planning process and its provider selection process.

Decision makers need to know with certainty that the automation system they receive will be designed and built to address all of their unique business requirements, processing strategies, and short and long term objectives.

They need to know that their automation system will achieve a level of integration that will not only unify advanced technology with algorithmic rich software and controls, but will also enable a seamless exchange of information between all critical automation functions, including WMS, WCS, Order Fulfillment, TMS, and existing enterprise systems.

And they need to know that the financial returns they are expecting from their investment in an automation system will be realized within the allotted time frame.

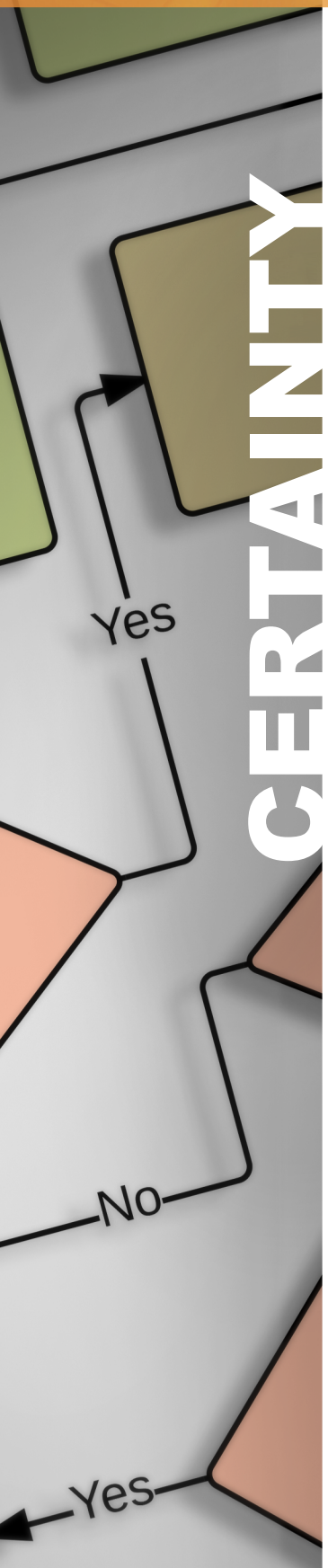
Decision makers also need to know that their automation system will:

- Perform exactly as promised, providing the metrics and audit trails needed to validate system performance.
- Not encounter any last minute surprises such as the need to customize software to accommodate client specific processing requirements.
- Be easily understood, operated, and maintained by their staff.
- Have a single point of accountability and support for all aspects of he system for the life cycle of the system.
- Be built to accommodate future growth or changing business demands.

To achieve that level of certainty, decision makers must have confidence in the automated systems supplier they choose to design and implement their system.

They need to know their automated systems supplier will:

- Perform the due diligence necessary to obtain a complete understanding of their business, data, operations, infrastructure, financials, and short and long term objectives.
- Derive the direction for its system design from an in-depth analysis of its client business data and not from what is best for the supplier's quotas or bottom line.
- Perform "proof of concept" modeling to validate their theory of operations, verify productivity assumptions, and demonstrate future financial gains as a prerequisite to finalizing design.
- Demonstrate through data analysis and financial monetization a business case for implementing the new system.
- Optimize the integration of subsystems through elegant design and standardized controls/software configuration.
- Optimize the flow of data across all system functions through sophisticated database design and real-time, millisecond data updating, sharing, and analysis.
- Provide transparency and clear and continuous communication at every stage of automation process through planned client interaction and deliverables.



The Negative Influence of Uncertainty

Without the level of certainty described above, decision makers will not have the resources or the confidence they need to make the decisions that are strategically best for the business.

Faced with uncertainty, decision makers often:

- Become overly risk averse.
- Shift focus from problem solving to problem avoidance.
- Shift energies from strategic thinking to self-preservation.
- Default to "safe" solutions that ultimately fall short of achieving company objectives.

For these decision makers, the decision process becomes a minefield of potential problems to dodge, rather than a roadmap for achieving long term success. And potentially game-changing investments in warehouse automation often get replaced by measures that have less perceived risk like:

- Choosing less sophisticated automation to avoid potential equipment and software compatibility issues.
- Partnering with the biggest name in the business (regardless of whether it offers the best solution), because few will question such a decision.
- Delaying any action, because incremental increases in operating costs are easier to justify than lump sum capital investment costs.

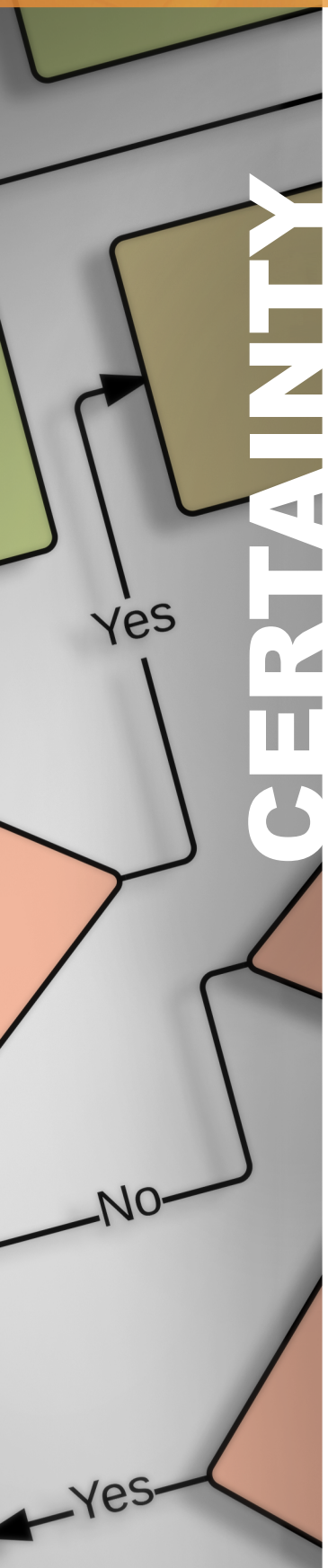
In the end, the negative influence of uncertainty on warehouse automation investments more often than not leads to unmet company objectives and lowered market expectations.

The Empowering Effects of Certainty

Without the level of certainty described above, decision makers will not have the resources or the confidence they need to make the decisions that are strategically best for the business.

Unencumbered by the fear of the unknown and bolstered by confidence in the outcome of their potential choices, they are free to make the decisions that best meet company objectives and enhance market position.

For these decision makers, warehouse automation can be a strategic weapon in achieving and sustaining market advantage as well as being a gateway to partnering with **the company than can best help them achieve their objectives.**



Providing Certainty as a Catalyst for Achieving Market Advantage

Through decades of experience in providing companies with warehouse automation solutions, the team at Invata came to recognize the critical role certainty played in enabling clients to make the decisions that best fit their needs.

We also came to recognize that, when it comes to achieving market advantage, certainty often serves as the catalyst our clients need in choosing the warehouse automation solutions that best fit their strategic objectives and, therefore, enhance their market standing.

Given that, we have gone to great lengths to ensure that certainty as it relates to the following areas is the primary deliverable Invata provides its clients:

- Process engineering and analysis
- Material and information flow analysis
- Data analysis
- Financial analysis
- Systems design, testing, and proof of concept modeling
- Mechanical, electrical, and controls engineering
- Software development and configuration
- Systems construction and installation
- Systems integration and commissioning
- Client training
- Systems support

We have done this by developing, testing, and honing a process for the design and deployment of intralogistics solutions that ensures certainty at every step along the way from our initial understanding of our client's business requirements and objectives to the delivery of a completed automation system.

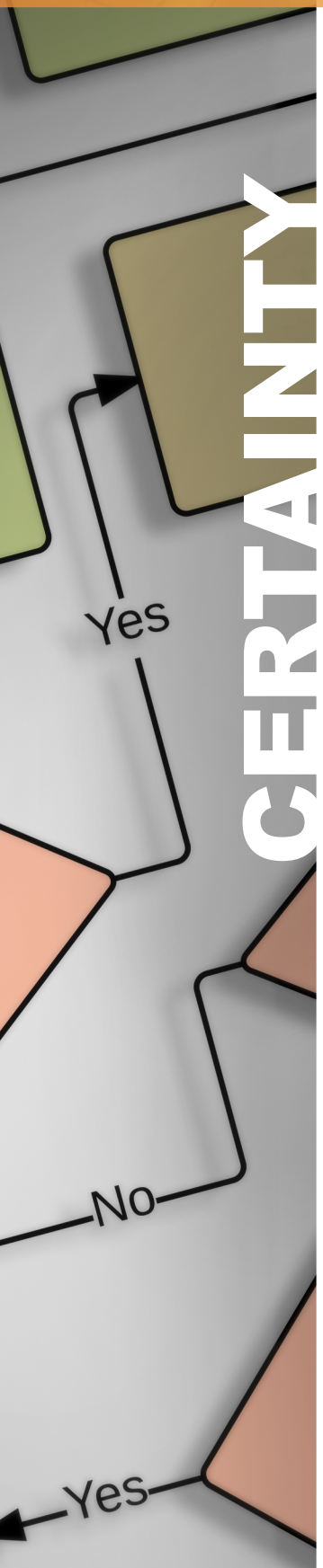
Simply put, this process is an *Algorithm for Certainty* that ensures a highly transparent process, includes client interaction and deliverables at every milestone in the process, and provides assurance that we deliver exactly what we promise.

Invata's Algorithm for Certainty

The Invata Algorithm for Certainty is a breakdown of the step-by-step process we use in the development and deployment of our most complex intralogistics systems.[1]

It is a process that has been field tested and assiduously honed over countless client installations to yield a proven methodology that consistently delivers promised results.

As a color-coded flow chart, the Invata Algorithm for Certainty diagrams each critical step in the Invata Process from our initial client interactions to the delivery of a completed system.



In doing so, it delineates what is involved in each step of the process, including particulars such as:

- Reports/information to be delivered to the client
- Input from, interaction with, and/or agreement from the client
- Validation/confirmation of benchmarks as requirements to proceed
- The start of key phases within the process

The Invata Algorithm for Certainty can also act as a roadmap for clients to aid them in understanding where in the development process they might be at any point in time. It has been designed to enable complete transparency of our process, while facilitating clear client communications.

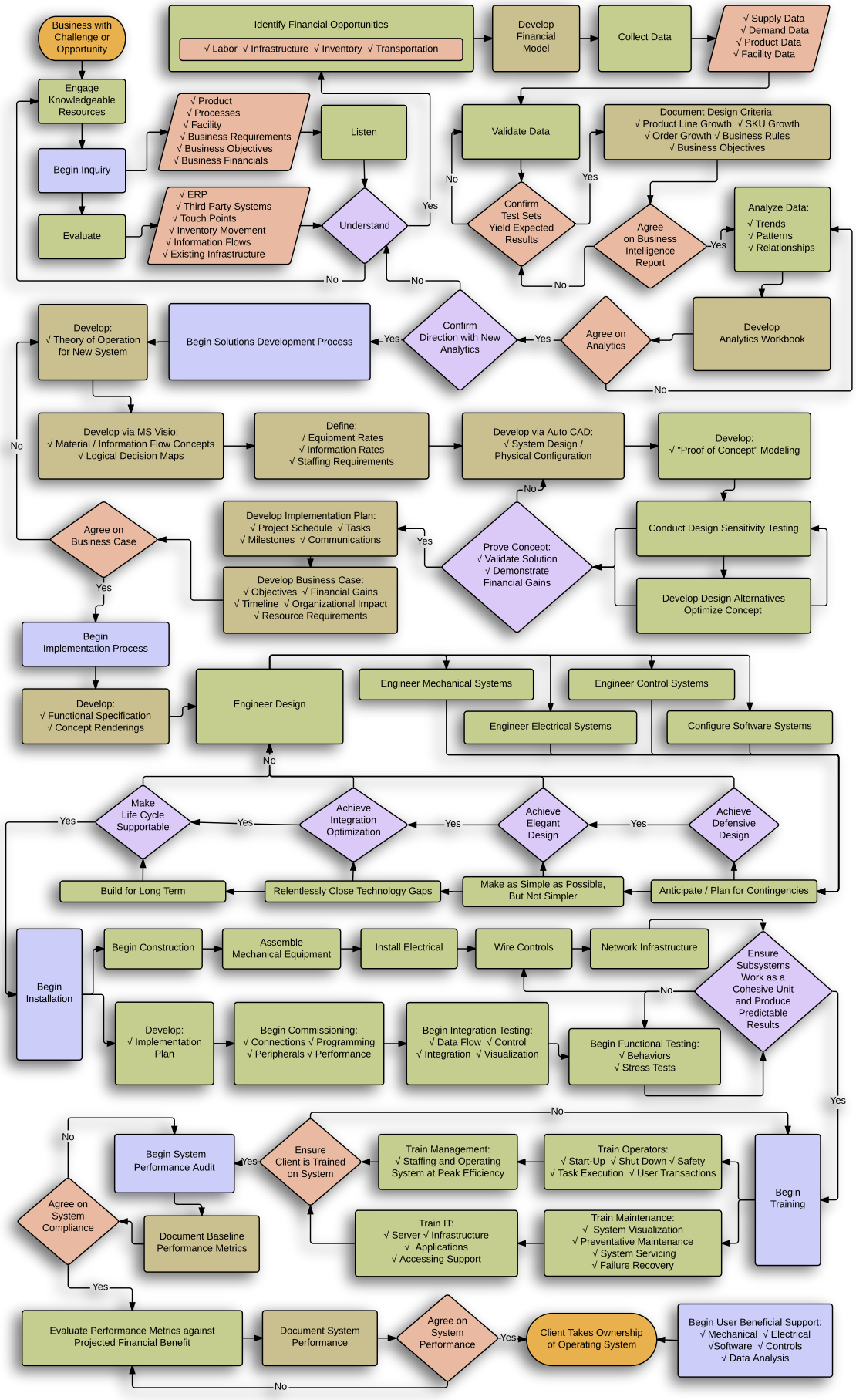
In short, the Invata Algorithm for Certainty is an amalgamation of our process and our ideology, so that those who are interested can get a complete understanding of both the lengths to which we go in designing and implementing Invata systems and the philosophy that drives our relentless conviction for efficiency and ultimately excellence.

As a blueprint for achieving certainty in your warehouse automation decisions, it can act as a catalyst for achieving market advantage.

1 Depending on the level of complexity of a project, not all the steps in this algorithm would be necessary or appropriate, but for large scale capital investments, this process has proven itself to be a catalyst for achieving market advantage.

To learn more about how this Invata Process can help your business gain market advantage, please contact us here.

INVATA PROCESS

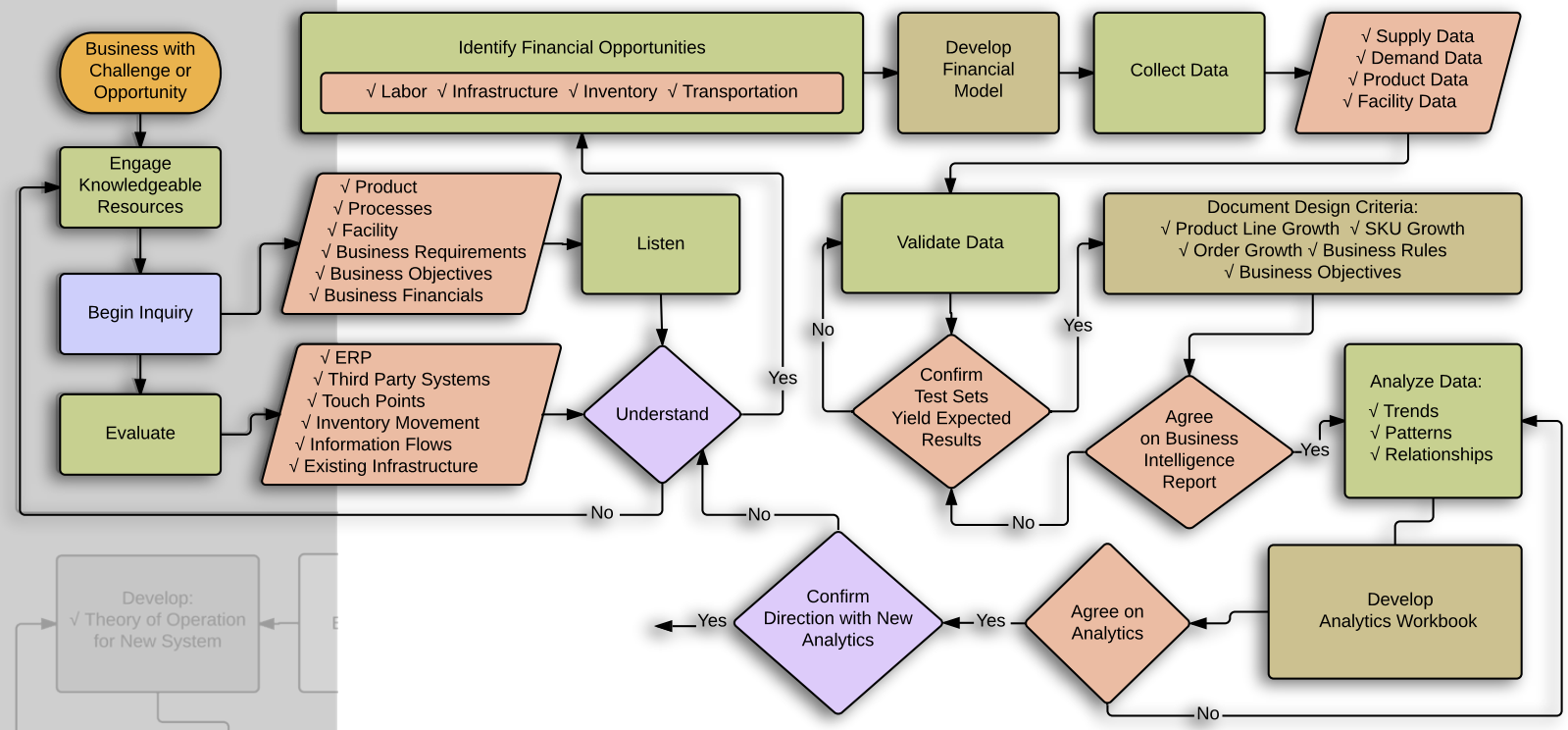


Color Code:

- Start/Finish
- Process Start
- Process Step
- Deliverable
- Client Interaction
- Milestone

The following provides an in-depth look at the Invata Process for designing and deploying intralogistics systems.

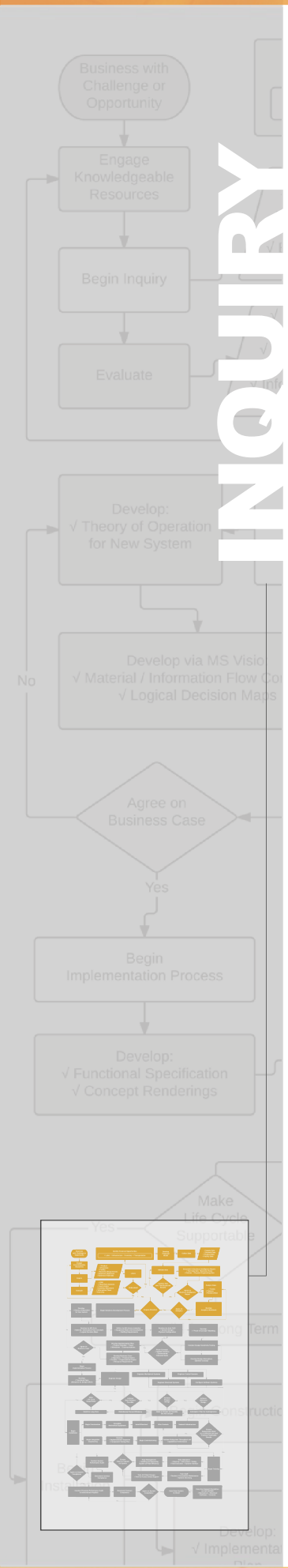
The Inquiry Phase



The Invata process begins with our initial interactions with a business faced with a warehouse automation challenge or business opportunity. Engaging knowledgeable sources within the business, we begin the critical process of inquiry.

Inquiry

Inquiry is the method through which we attain the level of understanding of a client's business needed to eliminate any doubt about the solution we ultimately provide that client. As such, it also the most critical phase of the entire Invata process, because it lays the foundation for all work to follow.



The Invata inquiry process entails an in-depth review of the client's:

- Product
- Processes
- Facilities
- Business requirements
- Business objectives/strategic goals
- Financials

and includes a thorough evaluation of the client's:

- ERP
- Third Party Systems
- Inventory movement
- Information flow
- Touch points
- Existing infrastructure

It requires listening, learning, and attaining a level of understanding that enables us to work with the client to establish strategic objectives and begin the process of identifying the opportunities that automation can bring to their business.

Identify Financial Opportunities

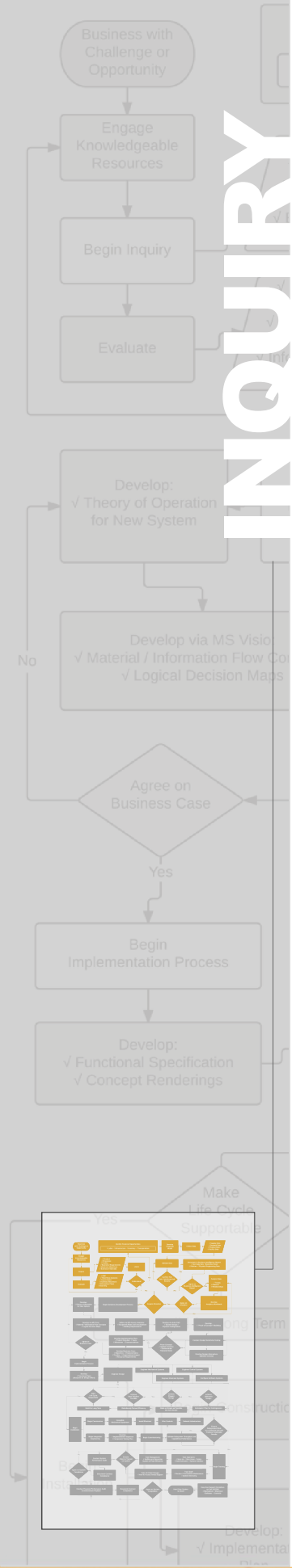
As part of the inquiry process, we examine four key areas of a client's business to begin to identify the potential financial opportunities that can be derived from warehouse automation. These include labor, infrastructure, inventory, and transportation.

Develop Financial Model

Having identified the areas in which we see opportunity for financial gain, we develop the beginnings of a financial model that will be used to justify the investment in automation while also serving as a benchmark for productivity improvements, design exploration, and objectives achievement.

Data Collection

The next step in the Inquiry Process is to collect real data that can be used to support the business analytics process and help further define project objectives and financial modeling. This generally includes supply data, demand data, product data, and facility data and incorporates business rules associated with the data such as policies related to sourcing, transportation, packaging, and inventory handling. Information required to effectively utilize the data such as fulfillment scenarios and growth forecasts is also collected.



Data Validation

Once data is collected, a data validation process is used to carefully select and validate data sets that will produce reliable analytics results. A specialized discipline incorporating custom tools is used to normalize data by eliminating duplication, consolidating files, and eradicating anything that could create undesired output anomalies.

The Invata staff collaborates with client team members to confirm that test set outputs are producing expected results. A sufficient volume of high quality data and an in-depth understanding of the meaning that can be derived from that data is critical to supporting design criteria and key to ensuring certainty in design direction.

Business Intelligence Report

Validated data sets are assembled along with their associated business rules, policies, growth projections, and physical engineering data in a Business Intelligence Report that is presented to the client. Client agreement on this report assures a mutual understanding of company data and objectives, while mitigating the risk of an analysis that fails to produce valid results.

Data Analytics

To ensure certainty in the direction of our automation design, we use a business analytics process to arrive at decisions based on continuous iterative exploration and investigation of a client's data. Invata's analytics tools have been developed to extract trends, patterns, and relationships between the drivers of design.

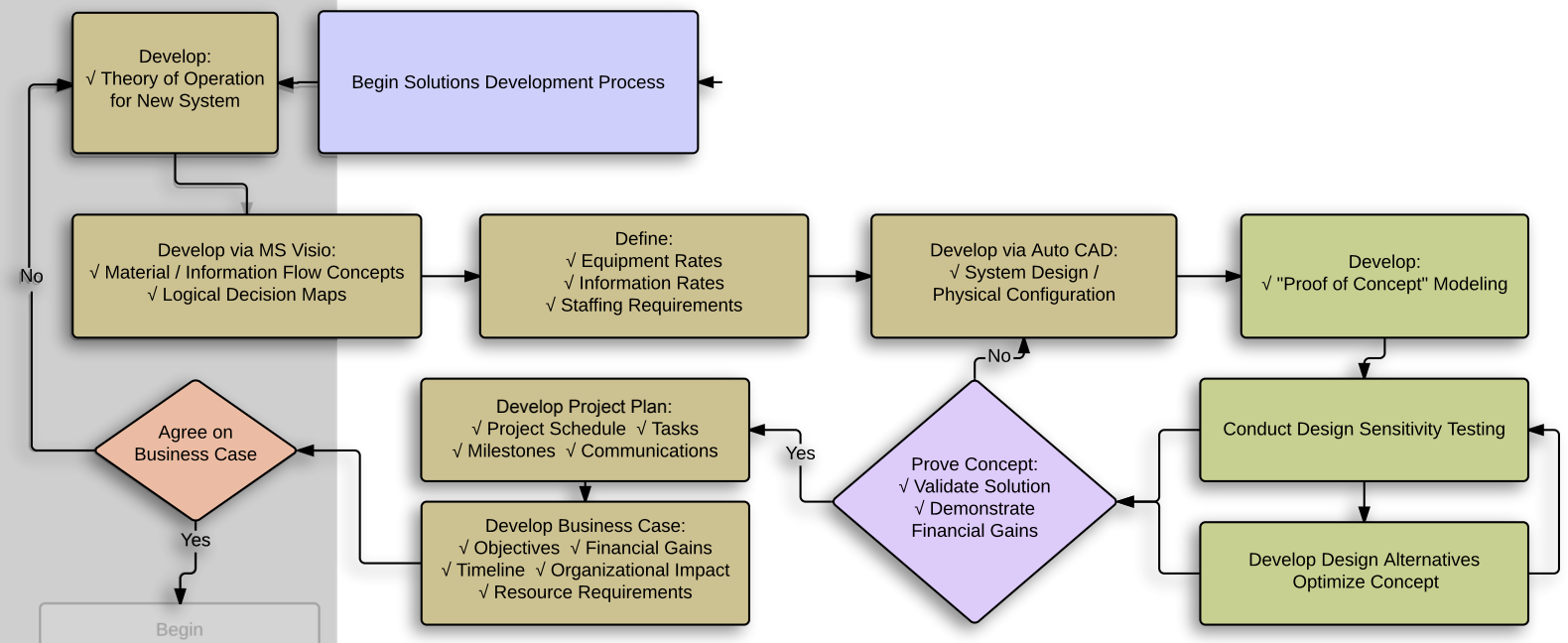
Our staff utilizes multi-dimensional queries that produce descriptive statistics to guide additional analysis. These techniques accommodate variable inputs to assist in easily evaluating the impacts of changes in business conditions.

The graphical outputs derived from our analysis allow our staff and the client team to make fact based decisions. We document the results of our business analytics process in an analytics workbook that is appended to the Business Intelligence Report.

Client agreement on the results recorded in the analytics workbook moves the process from inquiry to development.

To learn more about how this Invata Process can help your business gain market advantage, please contact us here.

Solutions Development Phase



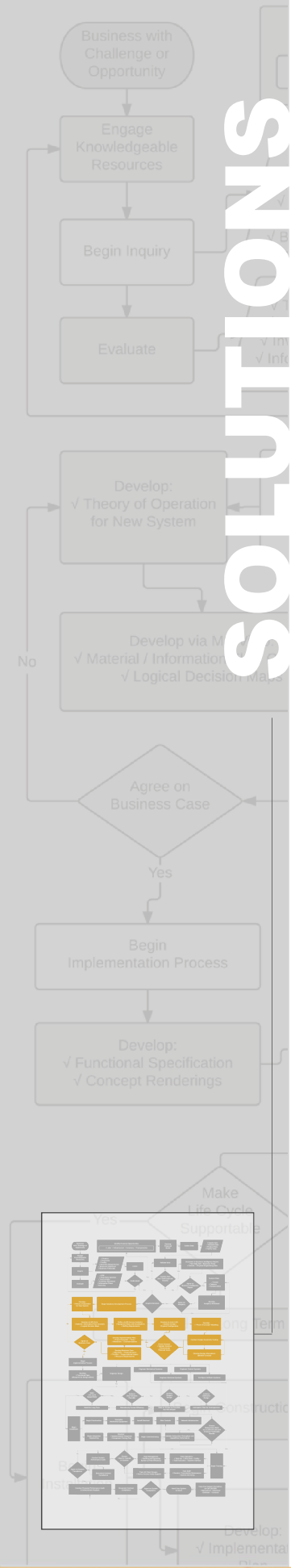
The Solutions Development Phase begins with the creation of a Theory of Operations for the new automation system or facility.

Theory of Operations

The Theory of Operations is an high-level document that is developed based on the intelligence and analytics derived from the Inquiry Phase of our process. It summarizes the concepts and the proposed physical layout of the new facility or new automation system.

Process Flow and Definition

The Theory of Operations is supported by the creation of logical decision maps for all processes included in the operation in addition to the creation of material and informational process flowcharts that are linked to analytics tools to produce rate definitions and validate staffing and equipment application assumptions.



SOLUTIONS

Facility and Systems Configuration

The Theory of Operations is further supported by physical configuration concepts developed in AutoCad as 2D drawings and 3D renderings. These include space planning, equipment application, and systems design. Invata has developed a library of space plan and system design concepts to enhance the process of evaluation of alternatives in search of the most efficient solution.

Proof of Concept Modeling

Proof of Concept Modeling is the process of creating computerized simulation models designed to approximate the reality of design concept options and prove their associated assumptions through advanced analytics technology. It is used to hone proposed design concepts into optimal design solutions.

Discrete event simulation is used to test and fine tune system layouts, equipment applications, software and controls logic, and varying measures of operator productivity.

Sensitivity testing is used to evaluate the performance of design alternatives against an extensive array of variable inputs. This type of rigorous comparative analysis testing in the face of widely varying scenarios aids in determining the limits of linearity for a design, assessing the capacity of a design to handle fluctuating production demands, and validating concept efficacy and adherence to the overall project strategy and objectives.

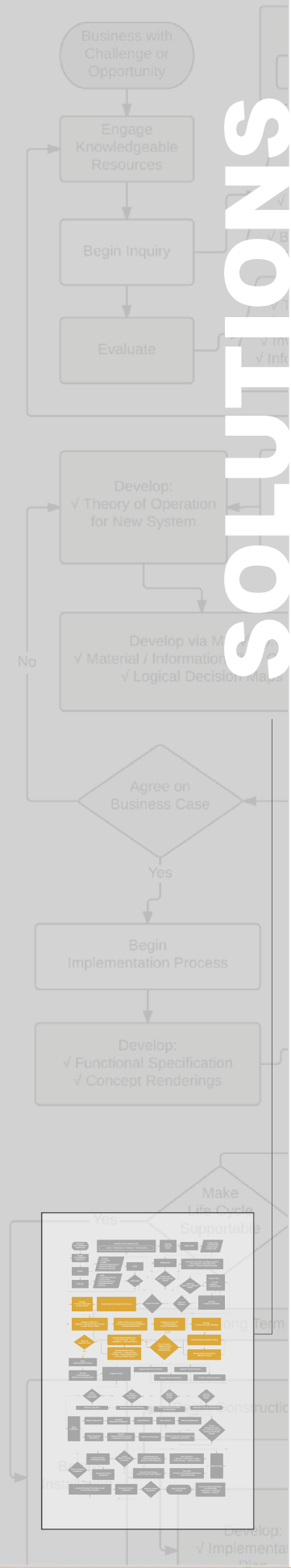
Proof of Concept Results - Solution Validation

One of the ways we provide clients with certainty in their warehouse automation choices is to mitigate their operational and contractual risks.

To that end, we share the quantitative results we receive from our Proof of Concept Modeling with our clients to validate our design concept assumptions and demonstrate their financial benefits — and we do so prior to asking our clients to commit to a contract or implementing any change within their organization.

This transparent process enables our clients to fully understand both the design of their system and its perform capacities in widely varying client-specific situations (with client- specific business rules in play) prior to committing to invest.

It is as close to being able to test drive a system as a client can get. And we make it available before an investment decision is necessary.



Project Plan

Once a design solution has been chosen and validated, we develop a Project Plan. This entails detailed project schedules linking all interdependent tasks and resource requirements to implement the solution.

In addition, the organizational structure and interdependency between the client team and Invata staff is clearly defined. Roles, responsibilities, and milestones are developed via our standard project methodology. And the timing of client communications, and all deliverables, including client resources, are outlined in the Project Plan as well.

Business Case Development

As a final step to ensuring certainty for our clients faced with choosing a warehouse automation solution, we build a complete Business Case for our proposed solution.

The Business Case demonstrates the benefits of the proposed solution:

- It details how the solution aligns with the client's strategic objectives.
- It quantifies the financial benefit and the expected time frame within which it will be realized.
- It identifies the organizational areas that will be impacted by the implementation and the resources required to meet the proposed schedule.
- It outlines qualitative factors supporting the decision as well.

The Business Case is produced with the client's executive level influences in mind. Agreement on the Business Case marks the end of the Solutions Development Phase.

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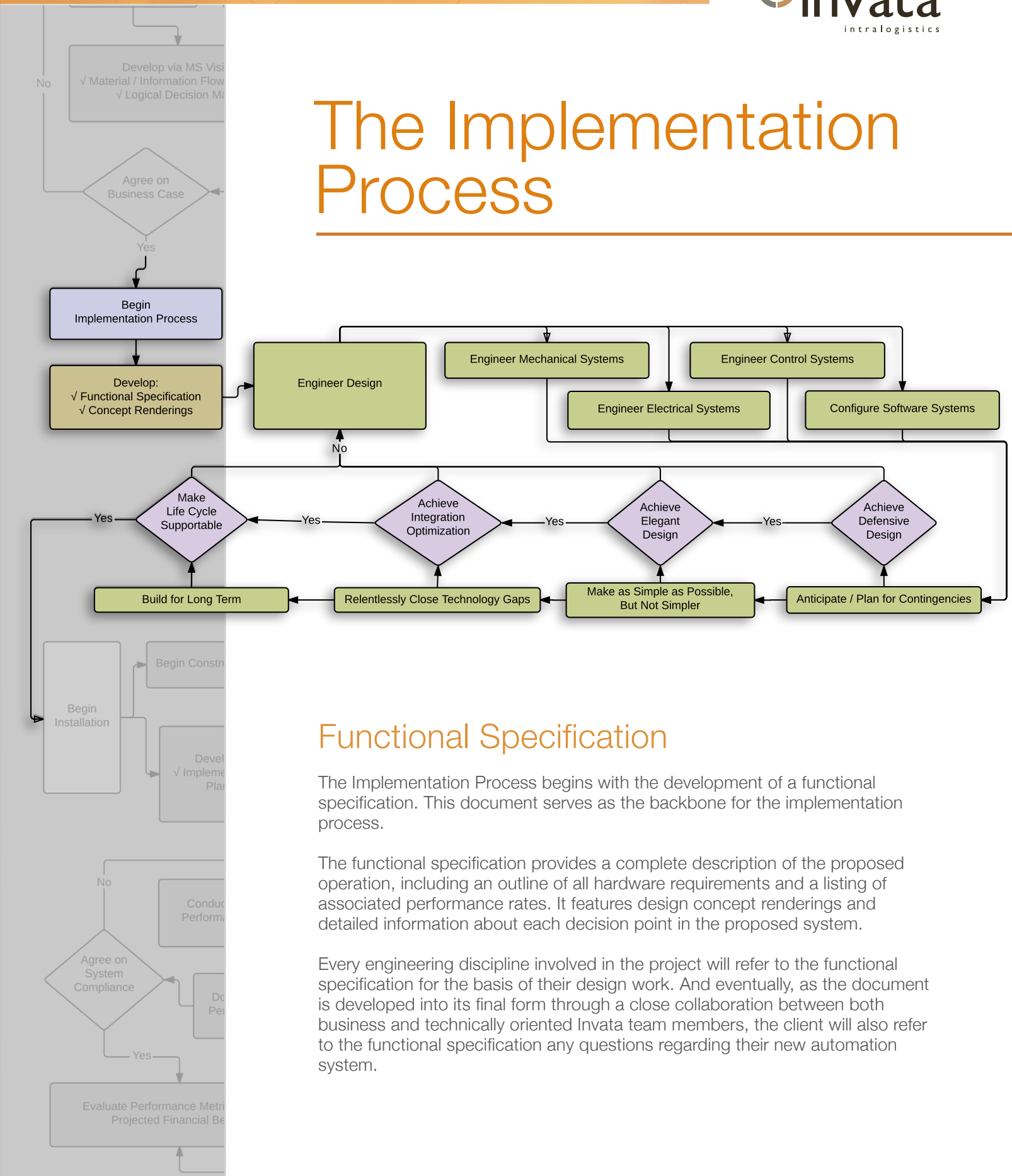
The Implementation Process

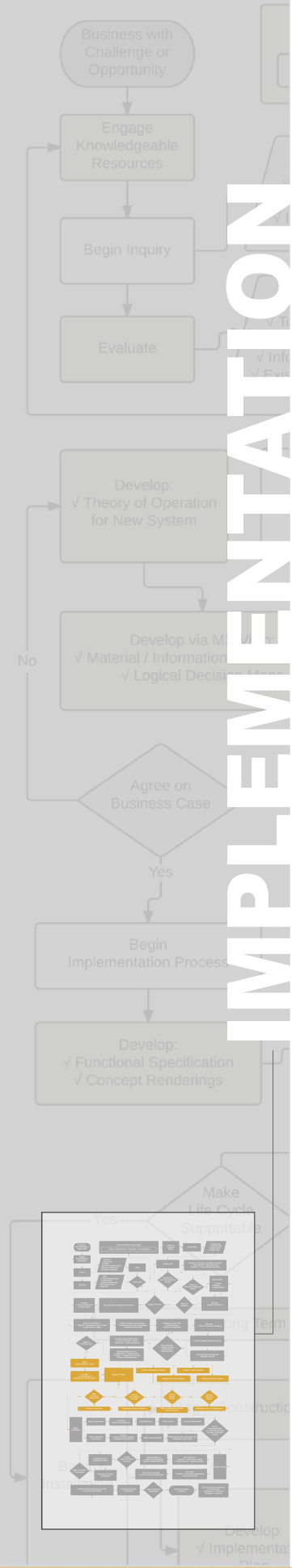


Functional Specification

The Implementation Process begins with the development of a functional specification. This document serves as the backbone for the implementation process.

The functional specification provides a complete description of the proposed operation, including an outline of all hardware requirements and a listing of associated performance rates. It features design concept renderings and detailed information about each decision point in the proposed system.

Every engineering discipline involved in the project will refer to the functional specification for the basis of their design work. And eventually, as the document is developed into its final form through a close collaboration between both business and technically oriented Invata team members, the client will also refer to the functional specification any questions regarding their new automation system.



Design Engineering

Using the functional specification as their guide, Invata engineering team begins a multi-disciplined approach to engineering the final system configuration.

Significant interaction and collaboration between mechanical design, electrical design, controls design, software design, and construction management are the key to ensuring delivery of a constructible, supportable system that fully meets business case objectives.

Mechanical Systems Engineering

Mechanical systems engineering is integral to conceptualizing the proposed system configuration and ensuring it performs exactly as specified. Critical operational requirements such as throughput rates, production capacity, mechanical systems configuration, equipment capability, future system expandability, minimization of risk, and system support all fall under charge of Invata mechanical engineers.

In the implementation phase, they finalize equipment application choices, detailing the subsystem components that make up the applications and establish the interaction/interface between those components and other equipment application components. This is a step-by-step process that builds upon itself until the entire system is mechanically configured.

Electrical Systems Engineering

Electrical systems engineering plays a critical role in the implementation process by defining and establishing the system's motion control capabilities and signaling methodology.

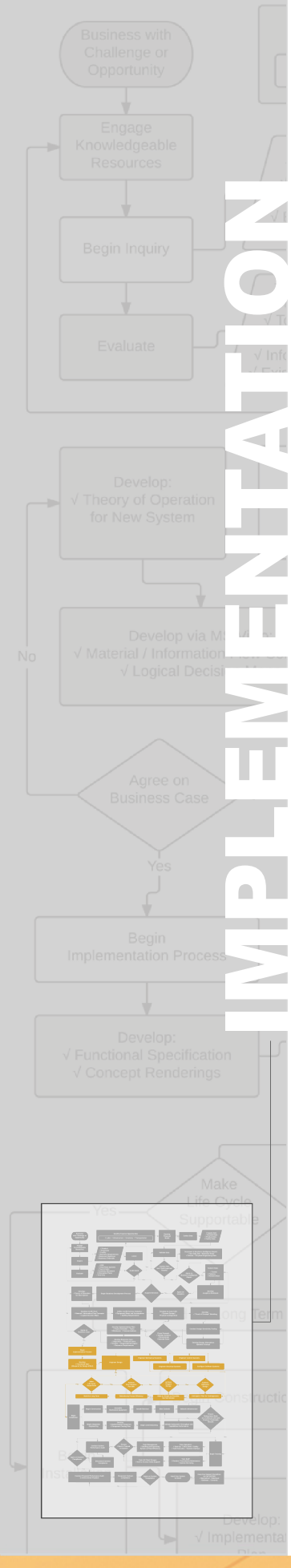
Working closely with Invata's controls system engineering team, Invata electrical engineers scrutinize the power distribution within a facility to determine the optimal distribution of control panels (in order to minimize the cost of power feed distribution), while maintaining the requirements of field device wiring.

Systems application decisions made by Invata electrical engineers not only enable precision control of system equipment, but also provide the critical visibility needed for remote monitoring and systems support.

All Invata electrical systems comply with local and national codes as well as our client's, regulatory, and Invata's safety standards.

Control Systems Engineering

Control systems engineering has been a central focus of the Invata team since 1987.



Consisting of widespread electrical devices that are wired to networked control panels and directed by deterministic, software driven processors, Invata Control systems are the key to optimizing the capabilities of the mechanical equipment and exploiting the potential performance of the system components.

To that end, Invata has developed a unique blend of controls that have been honed, tested, and field proven to not only maximize productivity, but to also provide our clients with the configuration best suited for maintaining peak operational performance for the life cycle of the system.

The controls aspects of the system are developed in cooperation with the mechanical engineering and software development teams according to what is called for in the functional specification.

Software Systems Configuration

Every warehouse automation system requires an overall controls architecture that includes system specific software.

The software engineering group at Invata works closely with other engineering disciplines to configure the software needed to manage all automated technology systems as well as the workers assigned to those systems — while also communicating with the customer's business software system to receive direction and confirm completion of orders.

Invata's software solutions are purpose-built from a library of fully tested and field proven building blocks of code that are configured based on the specifications of each client's automation system and the unique requirements of each client's business. Client specific rules and logic routines are built into the software as part of the configuration process to automate the decisions that must be made dynamically as work get done.

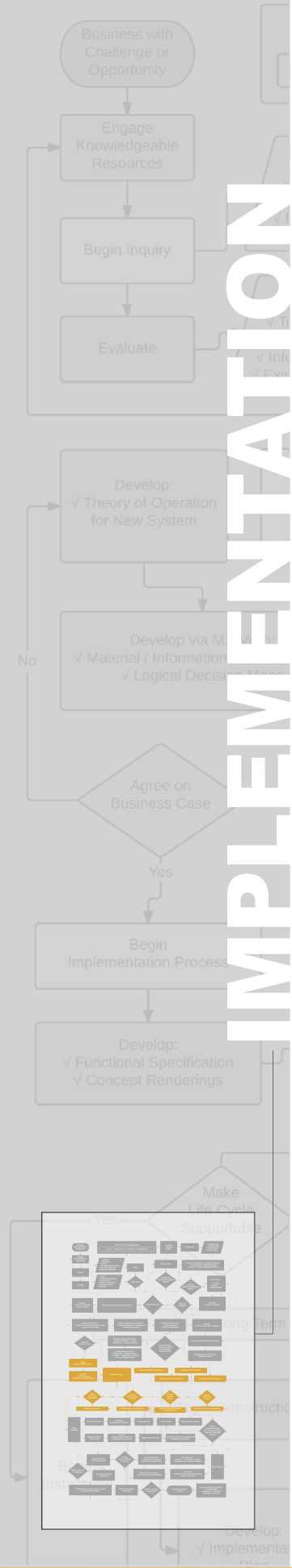
Invata software is delivered as a turnkey solution and may incorporate fully integrated WMS, WCS, Order Fulfillment, and TMS functionality or any subset of that, depending on the needs of the client.

Invata's software features operator interfaces that allow constant monitoring of the system performance as well as system-wide visibility down to the device level.

Engineering Milestones

At Invata, we approach every engineering challenge with a relentless conviction for efficient/defensive design, optimal systems integration, and fully-supportable automation solutions that provide lasting financial and strategic advantages to our clients.

In doing so, we set up milestones within the implementation process that every discipline must achieve in order to proceed to the next phase of development.



These milestones include:

Defensive Design

One of the critical responsibilities Invata engineers are tasked with is to figure out what can go wrong with automation systems and their associated devices. As a result, Invata engineers often spend their days looking at how each system can fail and how a failure in one area (or with one device) might trigger failure in another area.

Once our engineers fully understand what can go wrong with a system or device, their job is to build safeguards into those systems to ensure that if a failure occurs, it won't trigger a chain reaction throughout the system.

We refer to this process as achieving defensive design. It is one of the ways we ensure near perfect accuracy in the order fulfillment process.

Elegant Design

In engineering parlance, the term elegant is attributed to any design that achieves optimal efficiency while maintaining ultimate simplicity. An elegant design often uses non-obvious methods to solve a problem and may solve a number of seemingly unrelated problems at the same time.

When it comes to the implementation process, Invata engineers are tasked with making our systems as simple as possible, but no simpler.

We see beauty in simplicity, not only because the pursuit of elegance is inherent to our engineering roots, but because it translates to highly efficient, cost-effective, enduring automation designs that are easy for our clients to learn and to use — and for us to support.

As a result, no Invata design is considered complete until it is considered elegant.

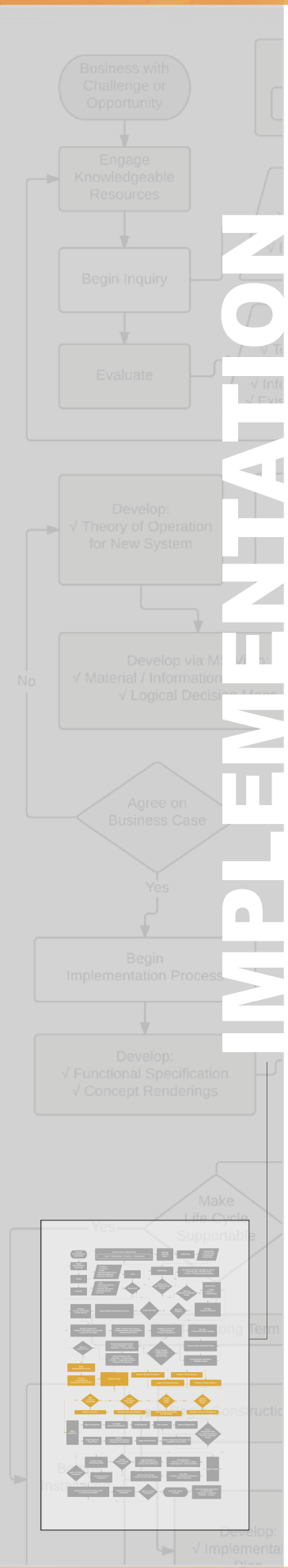
Integration Optimization

True intralogistics integration is defined by the efficiencies gained through process optimization, resource utilization, and the constant analysis of an operation by the sophisticated database and software systems that are the drivers behind true automation.

To achieve true integration, Invata engineers:

- Relentlessly close gaps in technology that could diminish efficiency.
- Optimize communications between mechanical devices, subsystems, PLCs, and software controllers.
- Meticulously configured software and controls to consistently produced expected results.

Only when this level of excellence in integration is achieved is an Invata system considered complete.



Life Cycle Supportability

We have one fundamental rule when it comes to any Invata automation system no matter how simple or complex: If we can't support it, we don't build it.

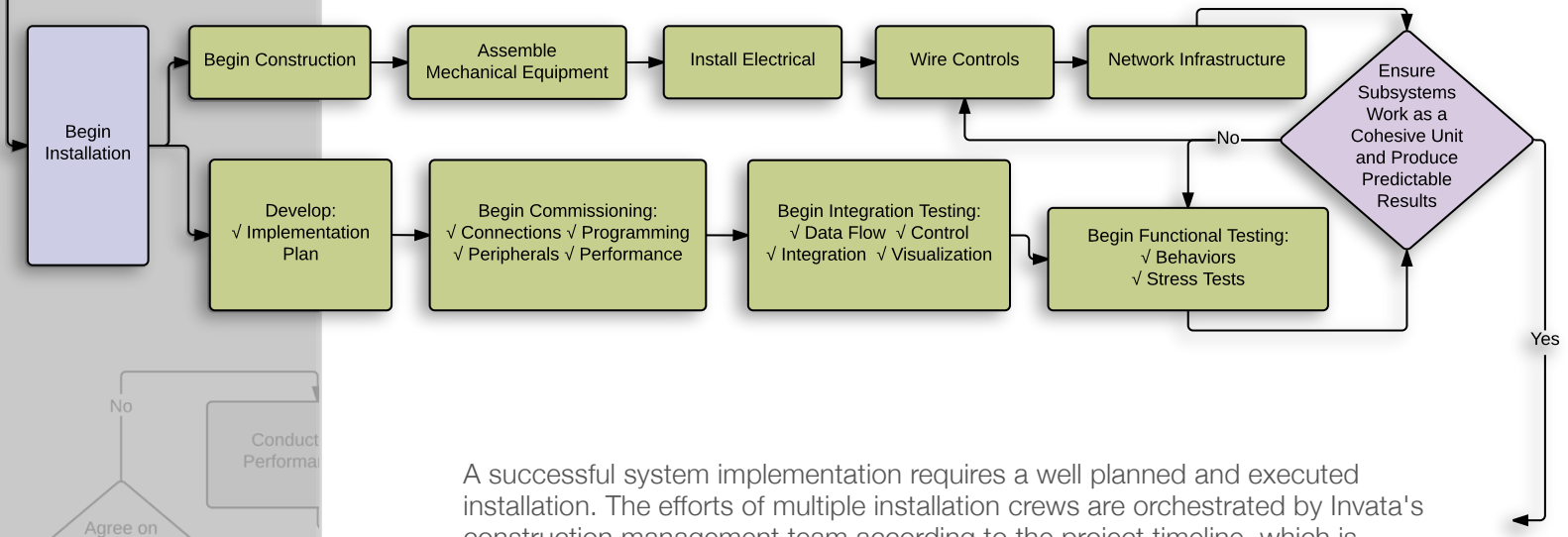
Consequently, every Invata engineering discipline is tasked with the responsibility of ensuring the supportability of not just the overall system, but every subsystem and component within the system.

This is largely accomplished through achievement of the previously mentioned milestones in the implementation process. By building elegant, defensively designed, meticulously integrated, highly optimized systems, we ensure our automation systems are fully supportable for the life cycle of the system.

In offering support, we act the single point of contact for all support needs on a 24/7/365 basis. We could not do that without complete certainty in the supportability of the systems we build.

To learn more about how this Invata Process can help your business gain market advantage, please contact us here.

The Installation Process



A successful system implementation requires a well planned and executed installation. The efforts of multiple installation crews are orchestrated by Invata's construction management team according to the project timeline, which is detailed in the implementation plan. Major installation services are completed in phases as outlined below:

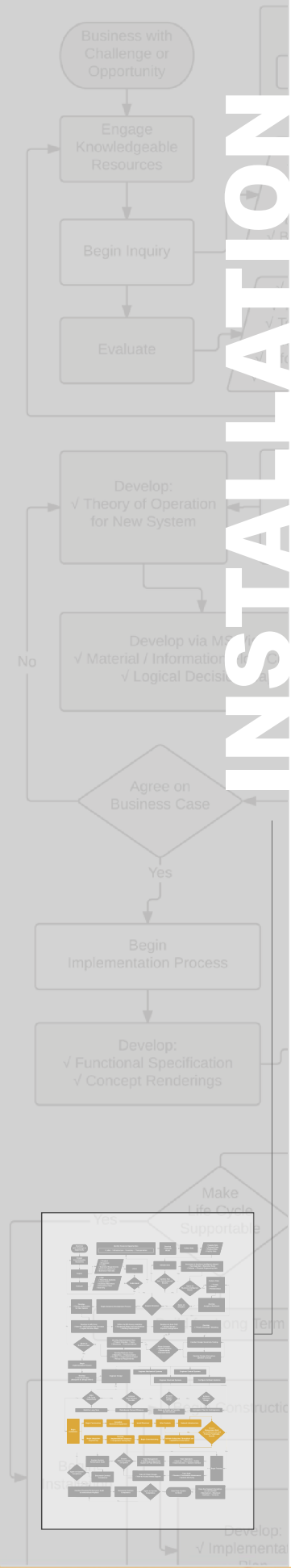
Steel Construction & Building Services — which include construction of the physical facility, if needed, and the infrastructure to support the mechanical equipment to be used in the facility. This can include mezzanines, conveyor platforms, storage racking and systems, and any structures required in the functional specification.

Mechanical Equipment Assembly — which includes the fabrication and set-up of all devices and subsystem components called for in the functional spec.

Electrical Installation & Control Wiring — which includes bringing power to equipment as well as all PLC wiring and installation and phasing of control devices.

Network Infrastructure — which includes connecting all equipment via ethernet network.

Software Integration — which includes installation of software systems and PC controllers.



Implementation Plan

An implementation plan is developed to ensure the installation process is orchestrated with efficiency and in the manner in which best supports the integration engineering effort.

Invata's Integration engineering team is tasked with ensuring all subsystems ultimately perform as a cohesive unit and produce predictable results. This requires an understanding of all other engineering aspects, including how to best orchestrate a system's physical layout and the phasing of the installation.

The integration team creates the implementation plan used by all other installation teams.

Commissioning

As soon as subsystems are adequately assembled, wired, and integrated, the commission process begins. This process is designed to bring subsystems to full readiness in a phased approach that eventually allows the entire system to be tested, tuned, and utilized prior to turnover to a client. This phased approach allows commissioning and testing of subsystems during the construction and implementation process.

The initial phases of commissioning begin with a check of all equipment and associated peripheral devices within a subsystem. It involves ensuring all connections have been made properly and confirming that the programming which will manage the equipment is in working order. Finally, an initial test is performed to ensure the subsystem operates as expected.

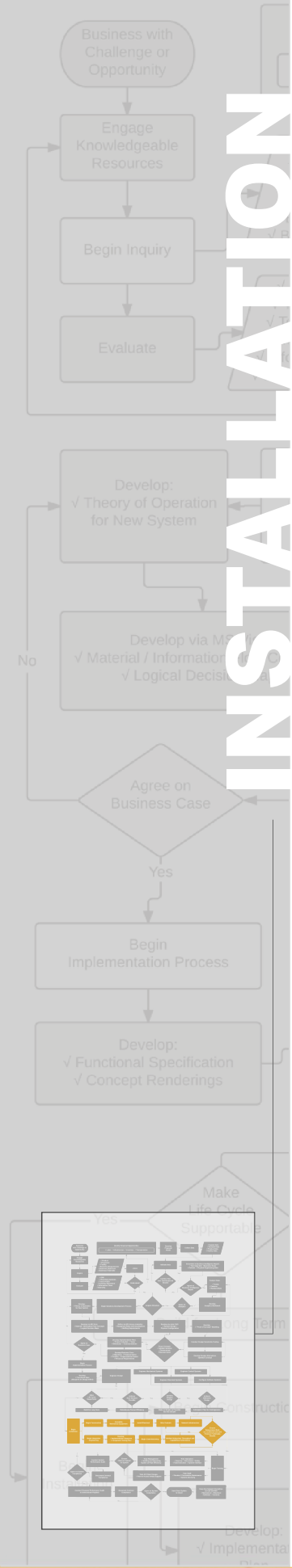
Integration Testing

The secondary phase of commissioning involves benchmarking subsystem performance against the criteria outlined in the functional specification.

A component performance validation process is developed using a test plan for each logical subsystem in the automation system. This test plan details both the materials to be handled by the subsystem and the throughput rates the subsystem must achieved in order to meet the standard detailed in the functional specification.

Any deviations regarding issues related to data flow, system control, integration, programming, or monitoring/system visualization are generally worked out in this phase of the commissioning process.

Invata engineers fully test, evaluate, and hone each subsystem until it meets the standard required to operate in tandem with all other subsystems as one cohesive automation system.



Functional Testing

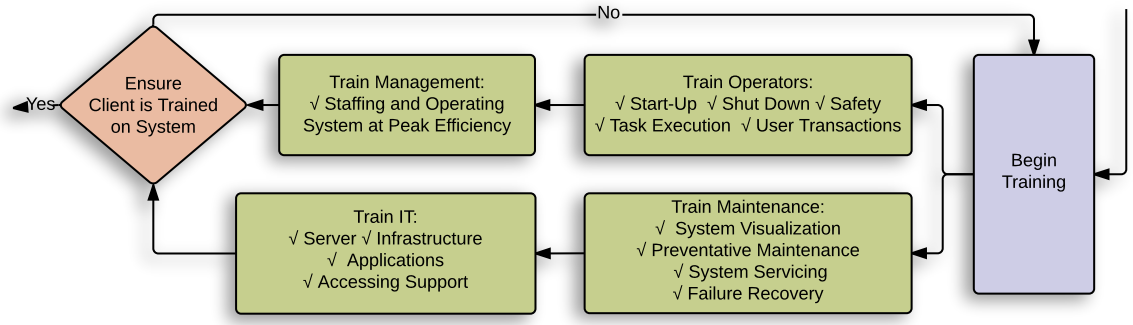
The final stage of commissioning involves the evaluation and testing of the functional capabilities of the system as a whole.

During this stage of testing, Invata engineers put the system through a series of stress tests to ensure it not only achieves the expected throughput, but that the behavior of each subsystem and, consequently, the system as a whole is consistent with the expectations outlined in the functional specification.

Only when the system's performance has been fully validated and the system functions as a single cohesive unit, does the process of training the client begin.

To learn more about how this Invata Process can help your business gain market advantage, please contact us here.

Training



Client training plays a critical role in a successful automation process as it promotes understanding, buy-in, and ultimately real ownership of the new system and any associated change by all levels of client staffing.

With that in mind, the Invata training process is designed to ensure all levels of affected client staffing from operators and maintenance crews to company management and IT personnel get the training they need to fully understand and operate the system at peak efficiency.

Since one of the most important training topics is how to get help when requirements arise, this information will be offered to every client group. It will include coverage of available assistance from in-house staffing to online resources, while also outlining how to access direct Invata support.

Training programs will vary depending on the complexity of the system and the level of involvement that each client wishes to have. Some clients request that our team stays on to manage and support the new system, while others use their own staff to perform this function. Invata offers training for client's operating multi-lingual facilities as well.

TRAINING

Operator Training

This level of training involves instructing system operators in the proper methods for system start-up and shut down, the fundamentals of task execution, and walking them through all user transactions required for operating the new system. It also covers a comprehensive review of how to ensure and maintain operator safety when working with the system.

Maintenance Training

If Invata service crews are not contracted to provide maintenance for the life of the system, training is offered to the maintenance staff instructing them in the areas of preventative maintenance, system servicing, and failure recovery. In the process, it also instructs the maintenance staff in how to utilize the system visualization features which offer remote monitoring and performance validation capabilities down to the device level.

IT Training

This level of training involves assisting the IT staff in understanding the systems controls architecture and associated infrastructure. It involves bringing them up to speed on system servers and databases, as well as the various software applications at work within the system and the interface with the company ERP. And, finally, it ensures the IT staff knows how to access support for the system, if needed at any point in time.

Management Training

This level of training involves instructing the management team in how best to manage staffing for the new system as well as how to consistently and proactively operate the system at peak efficiency.

It includes information on both the management and maintenance of the system and covers a routine maintenance schedule for the mechanical equipment.

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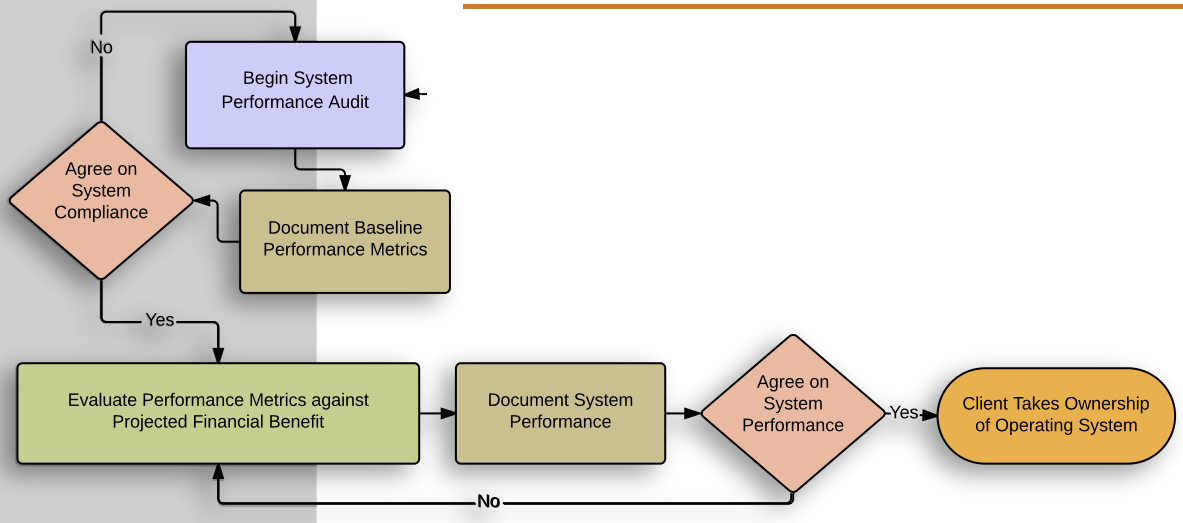
System Performance Audit



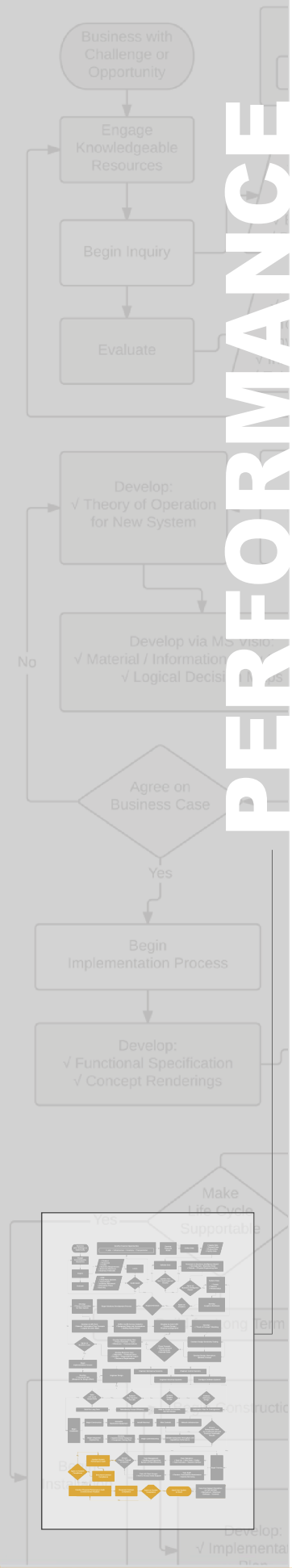
Once training is complete, the Invata staff works with the client management team to conduct a system performance audit. The purpose of this audit is to document a baseline performance metric which can be used to evaluate the system for compliance with the functional specification as well as for bench-marking against future performance.

This step is key to validating that we are delivering a system that performs exactly as promised and that client expectations are satisfied by agreement on compliance.

Invata recommends performance audits be performed every two years to review system throughput versus capabilities and enable recommendations for enhancements, modifications, and expansion.

Financial Performance Audit

Once agreement has been reached on system performance compliance, we evaluate the metrics derived from the audit against the projected financial benefit to be realized from the enhanced productivity.



PERFORMANCE

The results of this financial performance audit is compared to the projections offered in the original business plan to further validate performance compliance and ensure client satisfaction.

Clients can authorize a financial performance audit at any time, but it is especially recommended whenever a significant event changes client strategic objectives. These events include mergers and acquisitions, new product introductions, competitive pressures or opportunities, and changing economic conditions.

Document System Performance

The results of the system performance audit and financial performance audit are documented and presented to the client for agreement as a final step before turning over the completed system.

Client Ownership

Having been trained in system operation and maintenance and having received documentation validating system compliance, the client assumes ownership of their new warehouse automation system.

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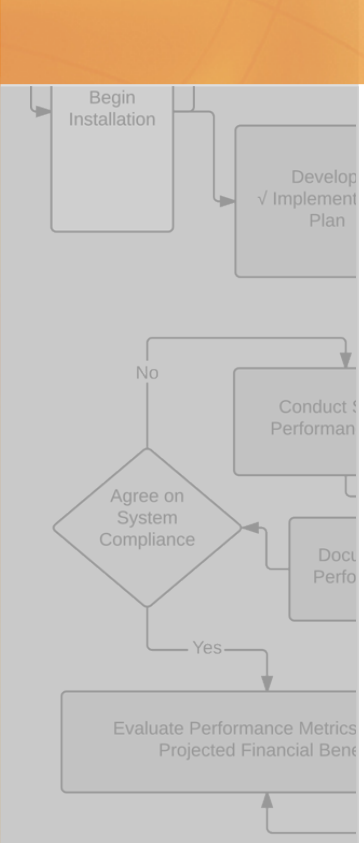


Begin Support Relationship

Begin User Beneficial Support:
√ Mechanical √ Electrical
√Software √ Controls
√ Data Analysis

Depending on a client's in-house staffing and technical capabilities, it may or may not elect to contract Invata for various levels of system support. Support is cover in a variety of ways described below.

24/7/365 Technical Systems Support

The Invata support team is available to provide remote technical support on a 24/7/365 basis. All service calls come into a primary point of contact capable of accessing all client systems. Our primary point of contact is trained in asking the right questions and utilizing our software tools to diagnose root causes. The discussion either narrows to resolution or to triage via more specialized support personnel.

Invata keeps a rotation of key disciplines on call for support purposes that include Mechanical, Electrical, Software, and Controls.

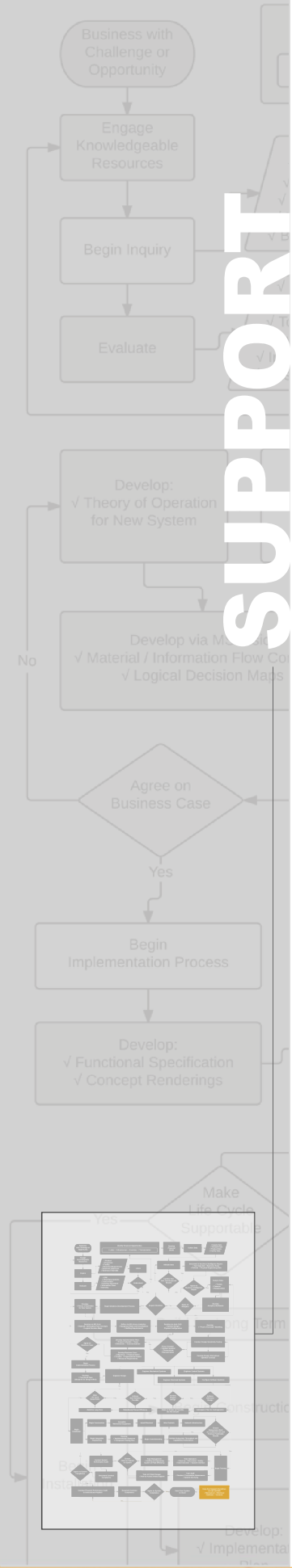
With remote visibility into all system issues, the Invata aftermarket support team can be a key asset to ensuring peak system efficiency.

Warranty Parts, Service & Support

Parts warranty claims and warranty service requests are directed to the Invata aftermarket support group. The aftermarket team makes a determination between warranty and non-warranty parts and dispatches the appropriate service persons if needed.

Spare Parts

Invata recommends that its clients keep on hand an inventory of at least the minimum quantities of spare parts needed to cover all devices that are critical to systems uptime. Depending on the system complexity, spare parts add between 1% and 3% to the contract price. Alternate ways to supply and support spare parts are available.



SUPPORT

Contract Preventative Maintenance

Invata offers scheduled preventative maintenance services to a broad sector of automated material handling system operators. Services vary depending upon client need and associated system requirements and can include:

- Maintenance audits to review equipment condition and recommend any necessary modification.
- Evaluation of a client's existing preventative practices and recommendations for enhancing those practices.
- Regularly scheduled maintenance performed by Invata support personnel.

Emergency Onsite Service & Support

Invata support personnel are highly trained in servicing mechanical material handling equipment, electrical systems, controls and software. Under supply agreement, technicians can be dispatched to client sites within twenty-four hours to assist in emergency cases.

Imbedded Maintenance Services

For clients looking to outsource various staffing requirements associated with their warehouse automation systems, Invata imbeds maintenance, management, and operations staff to aid in needed areas.

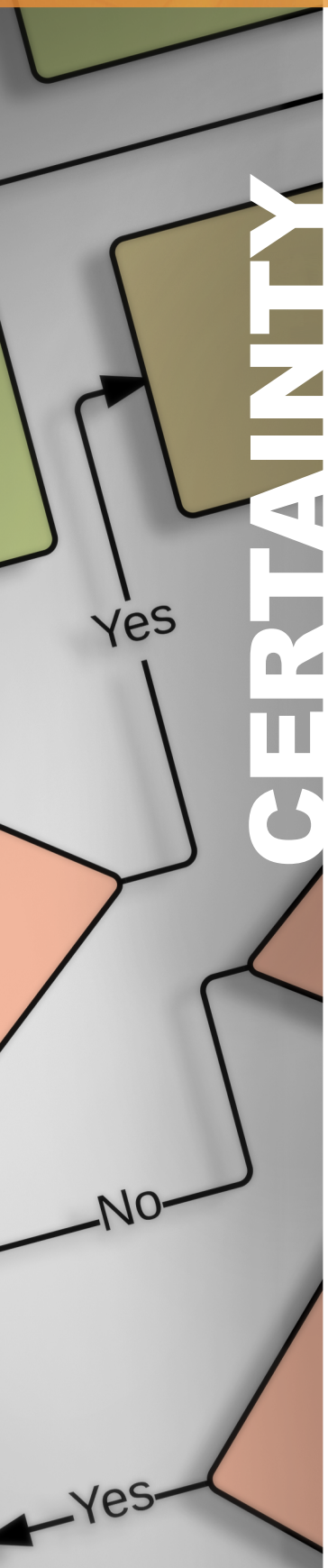
Imbedded maintenance speeds resolution of potential problems and increases uptime, and imbedding at any level relieves the client of having to find and train personnel with the technical expertise needed to maintain their system.

Software License Renewal Program

Invata's warehouse software is open architecture software, and ownership of the source code is transferred to the client at completion of the site implementation. There is a license cost that is based on the actual core coding content required for a specific installation. There is an option for an enterprise license when deployed in multiple installations.

The license cost is separate from the functional specification (development), configuration, installation and customer training (implementation) and the hardware costs.

The license is renewed annually at 18% of the base license cost. The agreement provides a path out if the client is not satisfied, wherein, when the client exercises the clause, Invata turns over all source code and development tools and provides training over a period of time for the client to take ownership of the product support.



Conclusion

Certainty. When it comes to warehouse automation, it can mean the difference between optimal performance and underperformance, between meeting demand and falling short, and between achieving company objectives and revising market expectations.

As a blueprint for achieving certainty in decisions about warehouse automation, the Invata Process of designing and deploying intralogistics systems provides our clients with a catalyst for achieving market advantage.

To learn more about how this Invata Process can help your business gain market advantage, please **contact us here**.

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