OPERATIONS AND SOLUTIONS DEVELOPMENT CAPABILITIES



Honeywell
Intelligrated®

OPTIMIZING AUTOMATION SYSTEMS

Honeywell Intelligrated's Operations and Solutions Development (OSD) team is the catalyst for optimizing our customers' automation systems within their operations.

Our customer-centric approach focuses on four pillars of distribution and fulfillment (D&F):

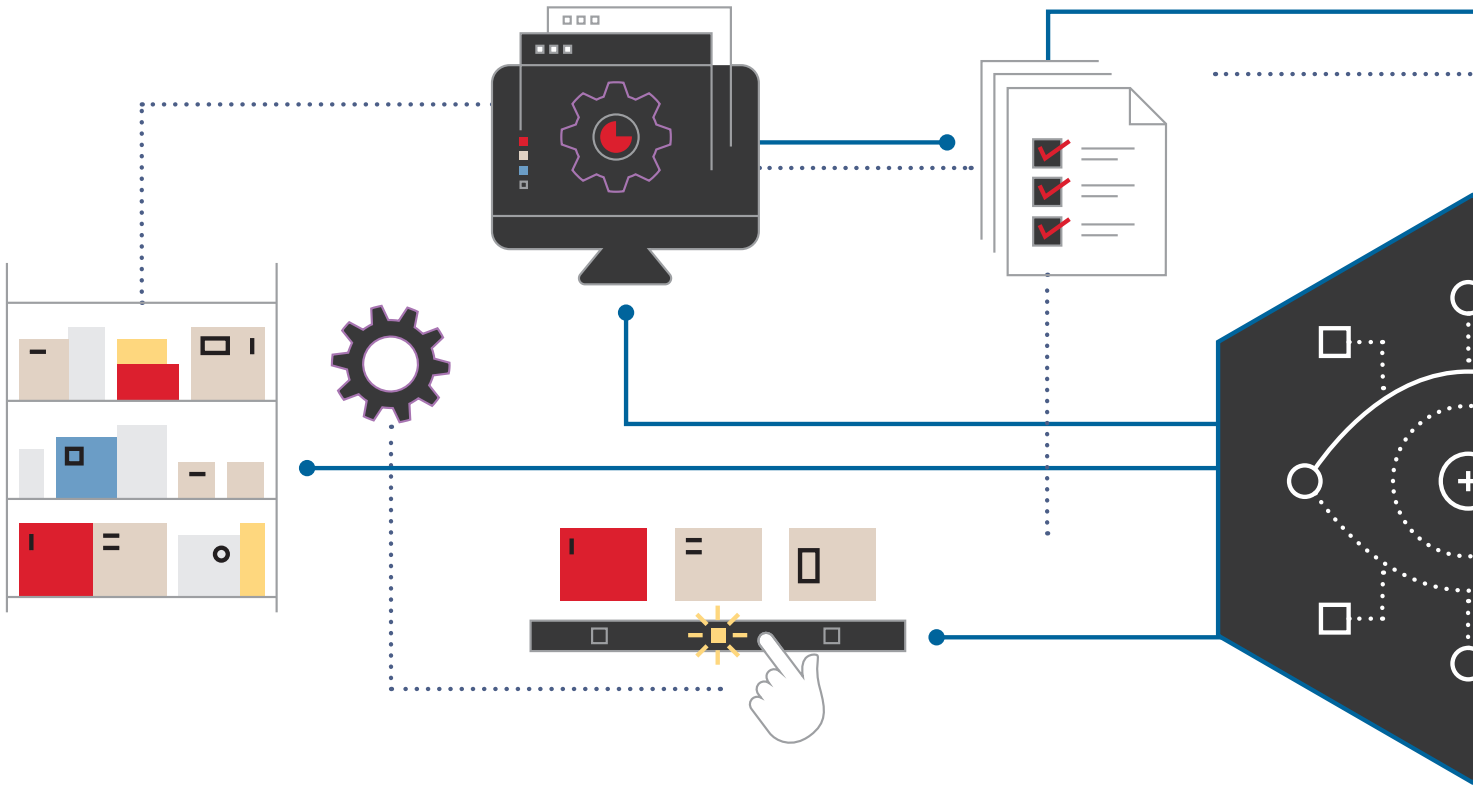
1. **People**
2. **Process**
3. **Space**
4. **Technology**

OSD works collaboratively with your cross-functional teams to develop a comprehensive understanding of your business goals and challenges.

We leverage these findings as a foundation in the development of industry-leading automation solutions and effective process improvement strategies.

OSD's operational consulting, solutions development and simulation services help end users to realize their business objectives while ensuring the greatest possible return on investment (ROI) and mitigating project risk.

OSD brings a truly holistic approach to your business' supply chain projects.



OPERATIONS

BACKGROUND — OSD OPERATIONAL CONSULTING (OC)

The OC team is comprised of industry experts who bring distribution center (DC) operational and profit and loss (P&L) expertise, with a primary emphasis on managing D&F operations. Our consultants have "walked in your shoes" and speak the language of DC management teams.

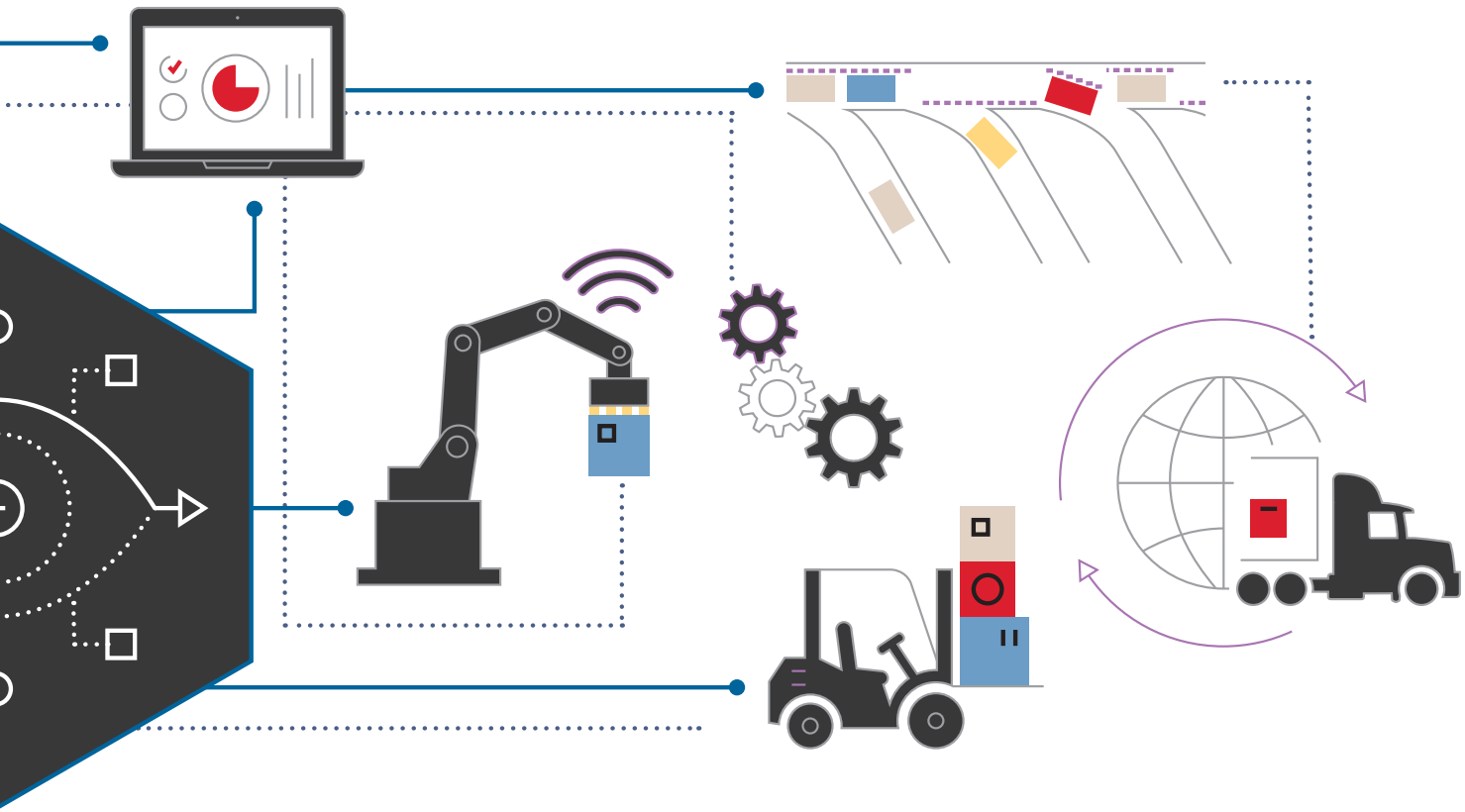
OPERATIONAL READINESS AND PLANNING SUPPORT

The objective of a comprehensive Operational Readiness Plan is to assess risks that could potentially create business disruptions during the transition to "go-live." Specific items of this plan may include staffing requirements, material and process flows, training methods, new job tasks and establishing critical key performance indicators (KPIs).



Our approach to developing an Operational Readiness Plan consists of the following:

- **Operational Readiness and Client Collaboration —** Review the proposed material flow, process tasks, staffing and training plans, and identify exception processes/ recovery procedures.
- **Readiness Plan Report —** When the assessment process is concluded, we produce a written report detailing the recommended tasks and resources prior to system go-live.
- **Operational Readiness Follow-up —** Provide an optional follow-up review to assess the progress of plan implementation prior to going live.





BUSINESS TRANSITION/ MIGRATION SUPPORT

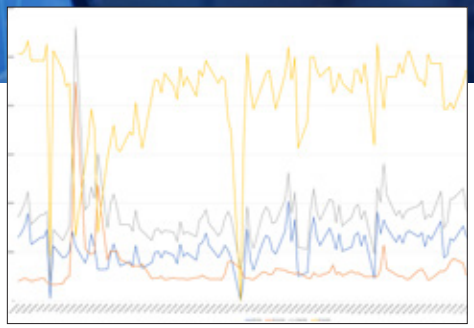
The goal of Transition Support is to ensure a successful project execution and enable a seamless transition from the old to the new. While the scope of Operational Readiness is largely strategic in nature, Transition Support is very tactical and execution-oriented.

OPERATIONAL ASSESSMENTS

One of OSD's most beneficial services is helping clients to maximize their current asset utilization and optimize existing processes. Typically, fulfillment processes are designed for optimal efficiency levels at the time they are initially developed, but as businesses grow and evolve, these original processes may no longer achieve optimal results.

The strategic objectives of an Operational Assessment include the following:

- Optimize the utilization of existing infrastructure and assets before considering additional automation.
- Quantify the potential opportunity gap that can be achieved without major expenditures.
- Extend the lifecycle of current assets to defer the need for major investment.



Operational Assessments are ideal for business leaders who have identified challenges with any of the following: increasing system throughput, improving productivity, removing capacity limitations, expanding product lines (SKU proliferation), compressing order cycle times, improving order accuracy, and planning for future growth.

SOLUTIONS DEVELOPMENT

BACKGROUND – OSD SOLUTIONS DEVELOPMENT

The Solutions Development team is made up of experts in facility design, layout and data analysis, as well as computer-aided design (CAD) specialists. Our Solutions Consultants have decades of design and systems experience across the entire spectrum of the D&F sector.

SERVICE OFFERINGS

Material Flow Analysis



OSD Solutions Development can map material movement within the four walls of a warehouse, spanning from receipt of product to shipment of orders. This includes put-away, storage, replenishment, processing, order consolidation, shipping and many others. Material flow maps help to optimize equipment layout, order picking, staffing levels and travel paths, minimizing processing time and improving labor utilization.

Data Analysis, Validation, Summary and Visualization

OSD performs a deep analysis of historical data in conjunction with future projection assumptions. Our innovative solutions are founded on end user data coupled with our extensive knowledge of industry best practices.

Design Criteria

OSD creates a Design Criteria document that becomes the road map for required investment, installation and proper operation of the system. This document walks through the design, its justifications and expected processes pertaining to the operation and automation.

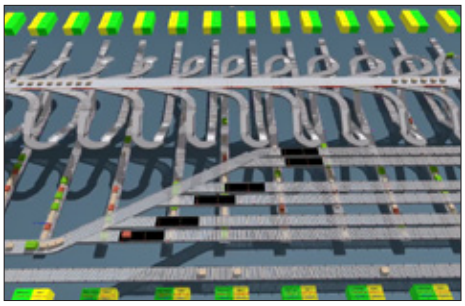
Building Sizing

Using very high-level information, we can quickly estimate the total footprint of the building, including: storage, picking, receiving, shipping, processing areas and offices. When involved early in the process, our services can even assist with the building selection process.

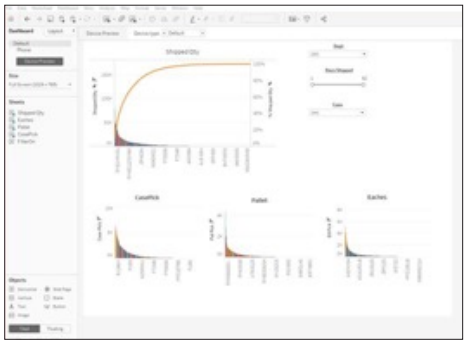
Reserve Storage and Pick Media Profiling

We determine and/or calculate the size, quantity and profile of storage and picking technologies, including: racking, shelving, totes, automated storage and much more. This can be documented in a report detailing the number and types of each storage medium for manual systems, or a suggested automated solution for more advanced systems.

Integrated System Design



When using an integrated system design approach, we offer our customers the ability to integrate multiple internal/external subsystems into a singular system controlled as one. By doing this, we give our customers the advantages of our product offerings, as well as other state-of-the-art technologies within the industry that are available to optimize DCs.



3D Graphical Solution Ideation

Using both AutoCAD® and SketchUp, OSD can efficiently produce multiple options and layouts for facility designs that enable easy concept visualization and comprehension. This allows us to iterate the development of ideas more efficiently with our customers to reach an ideal, approved design.

Labor Models and Financial Justifications/ROI

We can work alongside your cross-functional teams to develop Labor Models and help to connect those models with your project's ROI goals.

SIMULATION

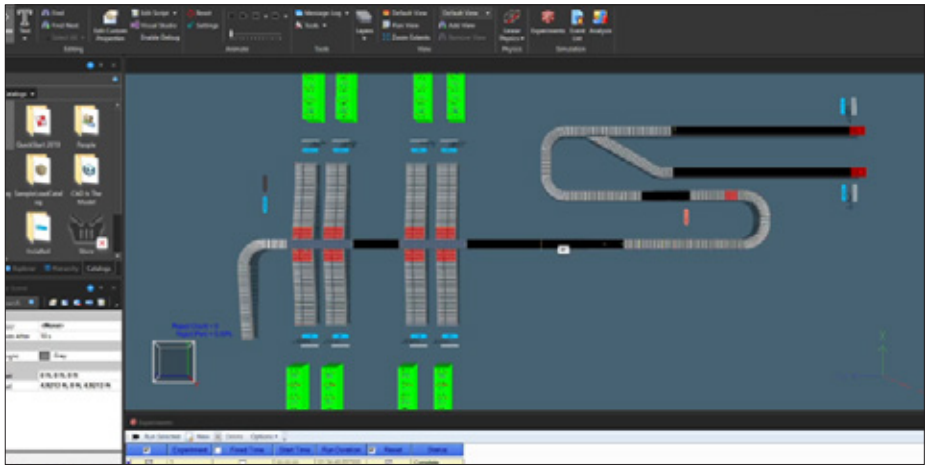
OSD's in-house simulation practice considers the physical, logical and operational aspects of a facility, along with actual product data, to provide comprehensive simulations.

We engage our data scientists, electrical and mechanical engineers, and design experts to build custom simulations that allow our end users to:

- Test before impacting operations
- Discover where inefficiencies exist
- Predict system bottlenecks
- Assess total and discrete capacities
- Predict impacts of pre-build decisions
- Plan effects of product mix changes
- Analyze predictions before peak periods
- Predict product wave approaches
- Quickly assess subsystems and work areas
- Anticipate impacts of operational changes
- Animate current operational flow
- View rich 3D design layout

FULL SYSTEM SIMULATION

We consider the entire layout and operations of your distribution facility and develop change scenarios to help you better understand the impact of those changes before they occur — using modern industry-leading, commercially available software and simulation methods. This approach allows us to take a deep dive into the most critical aspects of a solution to identify the risks and mitigation strategies associated with a change prior to purchasing any software or equipment.



SUBSYSTEM AND CELL SIMULATION

Changes to discrete business processes and introductions to innovations and logic are often focused only on a single area of your operation. We develop targeted simulations to consider the impacts of those changes and provide the insights needed to support intelligent data-driven decisions. It is common to simulate new technologies, new operational work instructions and changes in software logic before executing changes in the live environment.

REPORTING

Honeywell Intelligrated data scientists are paired with industry and engineering experts to validate and report the simulation results. Reporting is based on analyzing the data produced from the simulation model and physically watching the simulations run. Each of our observations is included in a comprehensive customized data reporting packet. This packet includes high-level results of sensitivity analyses and deep dives into areas of interest and concern. Charts, graphs, 3D model screenshots and videos are among some of the visual representations we can produce.





THE CONNECTED DISTRIBUTION CENTER

The pace of change in modern commerce is putting tremendous pressure on fulfillment operations. To stay competitive and protect profits, companies need solutions that help them achieve maximum throughput, day-to-day flexibility, future-proof scalability and intelligence to make informed decisions.

The Connected Distribution Center helps companies make the digital transformation necessary to increase reliability, improve utilization and maximize productivity through:

- Intelligent, data-driven, high-speed execution
- Automated, adaptable processes for machines and workers
- Optimized utilization with the ability to seamlessly adapt and expand
- Insights and predictive analytics, from sensors to the cloud

THE FUTURE IS WHAT WE MAKE IT

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