Optimization Assessment Program

Analysis & Evaluation Services

INFO SHEET

The Optimization Assessment Program is a series of analysis and evaluation services for active material handling equipment systems and intralogistics automation. These services provide a plan for production and distribution operations to maximize system performance, adjust functionality to current requirements, upgrade/modernize, and implement best practices.

The program services can be performed individually, in combinations, or all at one time for a comprehensive review of your systems. For details on each service, go to the following pages:

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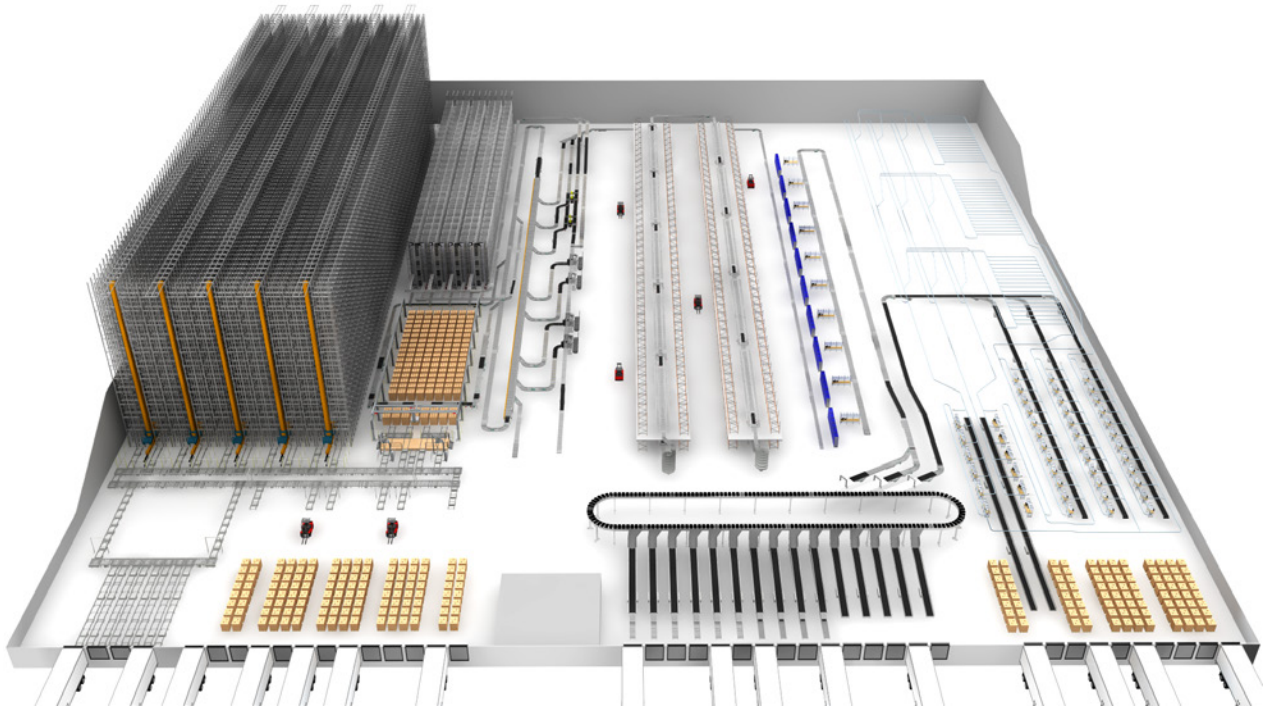


Operational Assessment

Intralogistics System Performance Analysis

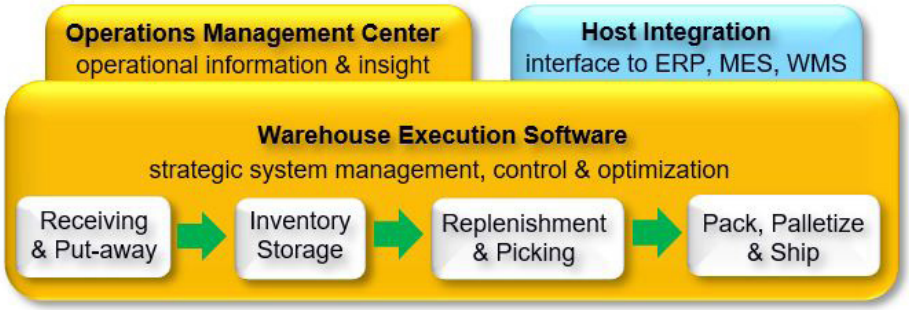
DESCRIPTION

Operational Assessment is an audit service that evaluates overall system performance. The process utilizes industrial engineering methods to make observations, collect information, identify issues, analyze data and make recommendations. The assessment is focused on system operation relative to current requirements and activity profiles as existing system design settings may not be appropriate.

The assessment scope of work may include an overall receiving-to-shipping analysis, or it may be focused on one or more areas of the operation such as order picking or shipping. Areas of particular focus include system throughput, inventory location management, labor productivity, space utilization, processing time, inventory accuracy, order accuracy, and system performance during peak and low volume time periods. An appraisal report is generated that summarizes the findings and provides recommendations for operational improvement.

ISSUES

Operational Assessment can help intra-logistics automation users find ways to gain more value from their existing system. Many operations require more system throughput capacity. Others are experiencing diminished system productivity or are realizing more delays in order processing time. Declining inventory and order accuracy may be a concern. Some operations have experienced a change in order profiles and require new or different functionality. An assessment provides a current state analysis and helps you create a plan for the future of the automated intra-logistics operation.



The operational flow diagram shows a typical system configuration. The assessment provides a comprehensive analysis of the system in operation relative to current requirements.

BENEFITS

- Reveal current state of the intra-logistics system performance
- Understand system settings & impact of adjusting to more appropriate settings
- Identify gaps between current operation and best practices
- Identify inappropriate uses of the system
- Receive insight about potential system enhancements
- Review a menu of options for consideration including impact, cost & scope
- Obtain recommendations on system revisions to meet changing requirements
- Understand how to extend functionality, agility, throughput
- Realize new ways to rebalance resources, processes, and workflows
- Reduce risk by ensuring effective system operation
- Understand ways to better accommodate fluctuations in volume
- Determine how to build a more robust and scalable system

Software & Controls Assessment

Intralogistics Execution Software Analysis

DESCRIPTION

Software and Controls Assessment is an evaluation service that provides a comprehensive review of the execution software and controls that manage intra-logistics automation. This proactive service enables operations managers to determine if adjustments, modifications or upgrades to the software are required and if new functionality is required.

The assessment includes a review of the software system configuration as originally designed as well as any modifications made after initial implementation. It includes an analysis of current requirements relative to activity profiles, throughput, processing time, and peak period performance.

An appraisal report is generated that summarizes the findings and recommendations of the assessment.

ISSUES

- Operating old versions of software & controls
- Computer hardware, PLC & software obsolescence
- Outdated functionality
- Unsupported operating systems (OS & database)
- Requirements for web enabled & thin client
- Unsatisfactory response times
- Difficulty meeting throughput demands
- Decreasing overall system performance
- Need for system visualization, insight & performance metrics
- Need for optimized workload allocation and balancing

BENEFITS

- Reveal current state of the intra-logistics execution software
- Understand current software settings & impact of revising
- Identify gaps with current software & controls
- Receive insight about potential software enhancements
- Obtain recommendations on software upgrades to meet changing requirements
- Understand new software options to extend functionality, agility, throughput
- Consider new software that automatically rebalances resources & workflows
- Reduce risk by considering upgrades that make software more stable/reliable
- Determine how to build a more robust and scalable system

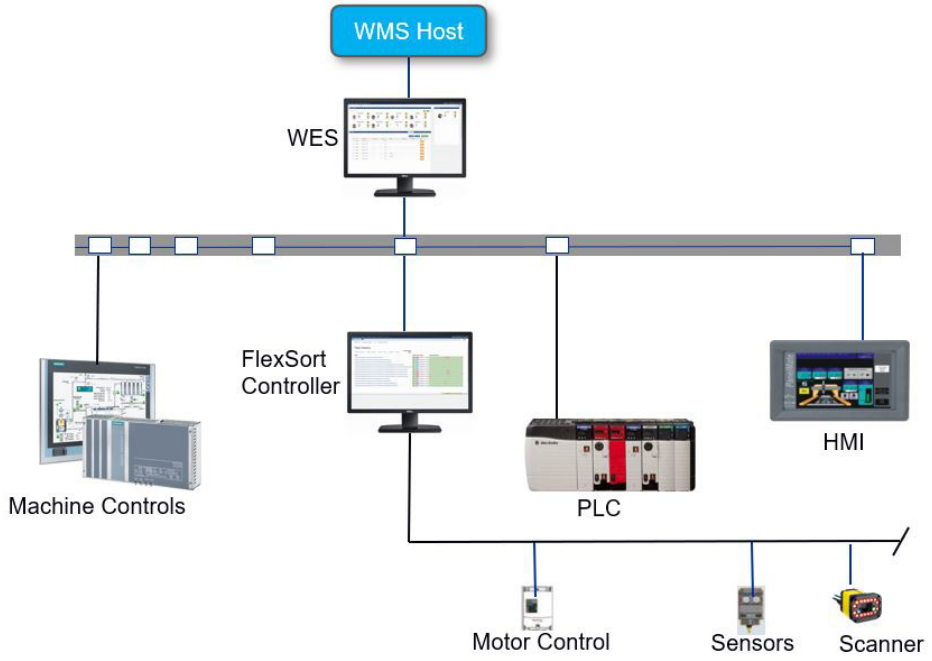
Software Infrastructure Assessment

IT Health Check-up

DESCRIPTION

Software Infrastructure Assessment is an evaluation service offered by Dematic. It provides a current state analysis of the execution software, network, and machine controls that manage an automated material handling system. The assessment involves a thorough examination of the intralogistics application software, databases, servers, and controls infrastructure. This proactive service enables operations managers to determine if adjustments, modifications, or upgrades are required to sustain maximum system uptime and performance.

Software Infrastructure Assessment includes reviewing and collecting information about the current state of the execution software and digital infrastructure as well as the analysis to interpret inspection observations. This service is accomplished remotely by Dematic IT specialists and includes a network scan of devices. An appraisal report is generated that summarizes the findings of the assessment.



ITEMS EVALUATED

- Application software
- Database software
- Software versions
- Operating system
- PCs & PLCs
- FlexSort controller
- Servers
- Host interface
- Host download errors
- Databases
- Data purge
- IP addresses
- Device connections
- Backup method
- Security software
- Anti-virus software
- Call history: trending, reoccurring

Material Handling Automation Assessment

Overall Equipment Effectiveness Analysis

DESCRIPTION

Material Handling Automation Assessment is a proactive evaluation and audit service that allows managers to identify adjustments, modifications, upgrades, and enhanced maintenance procedures for optimal performance. It provides analysis and appraisal of Dematic automated material handling equipment such as: conveyors, workstations, pick modules, sorters, AS/RSs, and shuttles. The assessment may also provide analysis and appraisal for third party equipment and technology that is part of a Dematic system such as: label print/apply devices, case sealers, weigh scales, and racking.

The assessment generates a report that summarizes the findings, provides recommendations for improvement, and includes specific data about equipment age, condition, and version/model lifecycle support.

ISSUES

Typical issues that lead to an assessment include decreased material flow, machine rate capacity, and sort accuracy as well as increased carton jams, power consumption, spare parts usage, downtime, emergency repairs, and sound levels.

BENEFITS

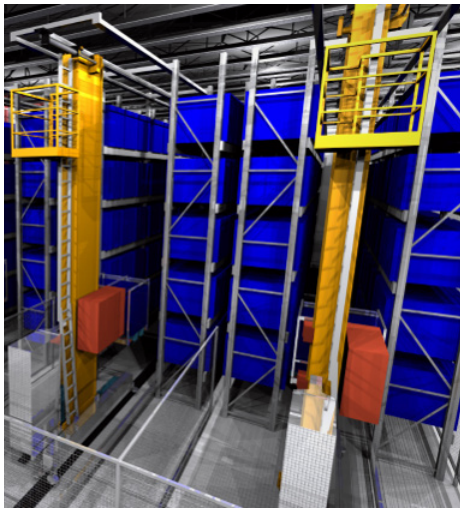
The assessment provides strategic insights into upgrades for improved equipment performance, including specific enhancement recommendations. It reveals hidden issues diminishing system effectiveness. It identifies safety issues and worn components that may fail and defines corrective actions.

Dematic Technology

- De-palletizers
- Conveyors
- Pick modules
- Sorters, linear, circular
- Automated storage (AS/RS)
- Shuttles
- Workstations
- Mobile automation: AGVs, AMRs
- Palletizers

Third Party Equipment

- Robotics
- Bar code scanners
- Carton erectors
- Label print & apply
- Weigh scales
- Load dimension scanners
- Case sealers
- Racking, totes
- Palletizers



Sample categories of evaluation information in the report: within specification, schedule repair, out of specification, immediate repair needed, repaired during visit, safety issue.

Safety Assessment

Worker Safety Analysis

DESCRIPTION

Safety Assessment is an audit service that evaluates the working conditions at or near material handling equipment and identifies opportunities for improvement. The assessment includes a review of:

- Current safety codes and regulations
- Ergonomic conditions — worker comfort, exposure to noise
- Tasks that interface with automation such as access and reach
- Procedures associated with job tasks
- Equipment guarding, sound damping
- Ease of interface with control panels and software screens
- Operating performance of mechanical equipment
- Emergency stop controls, buttons, cords
- Safety related to electronic sensing devices, controls, maintenance procedures.

The Safety Assessment report includes:

- Detailed findings including notes, pictures, and current safety status
- Gaps in safety for people and equipment
- Recommendations for changes/upgrades to operations and equipment
- Benchmarks with current safety codes and regulations
- Need for optimized workload allocation and balancing

ISSUES

Operations managers may be unaware that unacceptable safety conditions exist, including unsafe conditions that could expose your company and employees to substantial risk. It is a common mistake to believe that systems need only to adhere to the safety requirements that applied when they were installed. Since 1970, government agencies (such as OSHA) have specified that it is the responsibility of employers to maintain a safe workplace consistent with updated regulations.

The Dematic safety team has extensive experience and expertise with automated material handling systems. The team makes appropriate recommendations that balance the realities of system operation with safety regulations and policies.

BENEFITS

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Acoustics Assessment

Creating Low Noise Working Environments

DESCRIPTION

Manufacturing plants, warehouses, and distribution centers are typically large spaces with hard, reflective surfaces. Automated material handling systems in these facilities can contribute to elevated sound levels. Solutions are available to absorb and contain sound. The first step in the process to reduce undesirable sound/noise is an Acoustics Assessment.

An Acoustics Assessment is an audit service provided by Dematic that analyzes actual acoustic conditions in production and distribution facilities where automated material handling systems operate. Measurements are recorded to obtain data for sound levels experienced during normal workday activity.

An Acoustics Assessment produces a scientific overview of conditions relative to sound levels and sound quality. The process uses industrial engineering methods and acoustic modeling and mapping software to measure data, develop simulation models, provide analysis, create reports, and make recommendations.

ISSUES

Workplace sound level considerations:

- Employee performance
- Stress level
- Ability to have a conversation
- Safety, wellness, comfort
- OSHA regulations and guidelines

Quieter workspaces offer:

- Less noise hazards
- Increased productivity
- More employee comfort
- Less employee turnover
- Safer workplace

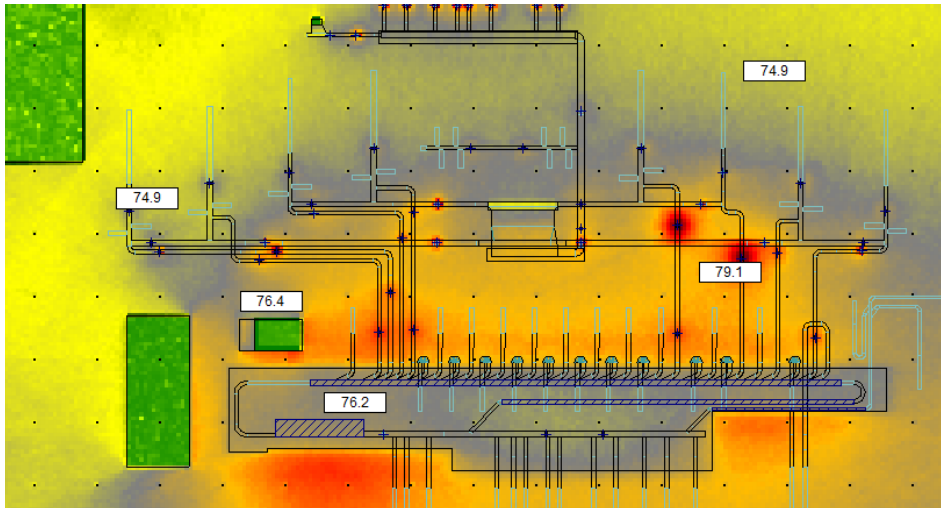
BENEFITS

Three-dimensional facility layout software provides the dimensions for the physical layout of the facility, and acoustic modeling software generates the simulations. During the site visit, microphones, sensors and sound level meters are set at strategic locations to capture and record acoustic data, which is imported so software can create a digital model to conduct simulation modeling experiments. The model generates heat maps indicating location and level of sound. Multiple simulations are conducted using various sound containment solutions, and the models are evaluated for effectiveness. The resulting assessment report includes:

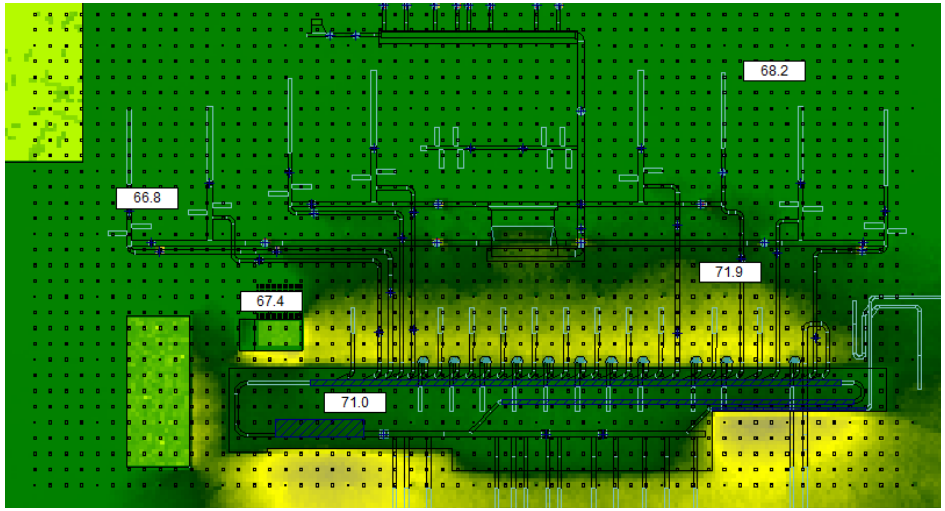
- Description of data collection
- Description of simulation modeling and mapping
- Heat maps from the various simulation modeling experiments
- Sound level readings by area predicted by the simulation models
- Recommendations for sound containment treatments
- Recommendations for conveyor and sorter upgrades that reduce sound

Typical Sound Containment Solutions

- Quiet replacement rollers for roller and belted conveyors
- Quiet operating replacement accumulation conveyor
- Sound containment kit for sliding shoe sorters
- Dematic quiet operating totes
- Various absorption treatments & sound containment solutions as needed



Acoustic heat map without sound containment



Acoustic heat map with sound containment

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▷ For information about modernizing or upgrading your operations, please contact us.

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