Guidance From 2,100 Lessons Learned — Institute Governance and Modification Control to Avoid Failure and Delays to Your WMS Implementation

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Initiatives: Technology and Solutions for Supply Chain and Operations and 1 more

Approximately 30% of WMS implementations suffer delays and nearly all have setbacks. Supply chain leaders should review this research to identify the critical factors to manage during implementations that will improve the likelihood of success and safeguard their positions.

Overview

Key Challenges

- Unnecessary modifications to the warehouse management system (WMS) and excessive adaptations to accommodate “as is” processes severely delay implementations and inhibit the ease of future upgrades. They can also embed bad processes into the new system.

- Poorly managed change processes and lack of accurate records lead to additional costs and effort during implementation.

- Unstructured requirements sessions lead to scope creep, which puts delivery of the WMS project at risk.

Recommendations

Supply chain leaders responsible for technology and solutions for supply chain and operations should:

- Restrict system modifications by instituting strict governance and control while challenging the vendor to provide input into your process design.

- Formalize change request/modification procedures and maintain accurate and accessible records through the use of escalation, process mapping and customization reviews.

- Structure requirements sessions through the use of Gartner’s complexity models, aligning the requirement’s freeze and challenge the vendor to support ease of configuration within the core product.
Introduction

Gartner research finds that while few WMS projects completely fail, a large number of WMS implementations, although ultimately successful, often consume significantly more time, effort and cost than initially anticipated. Issues arising from delayed implementations compound when delays force organizations to “go live” in peak periods. In this scenario, supply chain leaders can be caught in a dilemma. Should they delay the implementation further, thereby damaging their reputation and impacting the ROI, or risk proceeding during peak, which may result in service disruptions, losses in revenue and more serious reputation damage?

Figure 1 shows that from 340 client references surveyed in 2019, the majority of respondents indicated that their WMS projects were implemented on time or ahead of schedule; however, almost one-third overran their schedule. Furthermore, more respondents reported greater than six-month and 12-month overruns compared with those that implemented ahead of schedule.

Figure 1. Proportion of WMS Implementations Delivered On Time and On Schedule

Proportion of WMS Implementations Delivered On Time and On Schedule

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was Implemented Ahead of Scheduled</td>
<td>6%</td>
</tr>
<tr>
<td>Met Initial Schedule</td>
<td>64%</td>
</tr>
<tr>
<td>Was/Is Behind Schedule by Less Than 6 Months</td>
<td>22%</td>
</tr>
<tr>
<td>Was/Is Behind Schedule by 6 to 12 Months</td>
<td>4%</td>
</tr>
<tr>
<td>Was/Is Behind Schedule by 12 Months or More</td>
<td>4%</td>
</tr>
</tbody>
</table>

n = 325, excludes don’t know.

Q: Please confirm is/was your project on schedule?
Source: Gartner
While failure of any IT project is damaging, it is particularly problematic for warehousing, which is often a key gateway to the customer. A flawed implementation can affect an organization’s customer service, quality, accuracy, revenue and cash flow for a long time. It can also severely impact a supply chain leader’s career. Social media can further magnify the poor perception of customer service issues resulting from mispicks, shortages and order delays, and further weaken an organization’s revenue and reputation exponentially.

This research is based on the experiences of Gartner’s WMS analysts, detailed reviews with 26 WMS vendors, more than 2,000 WMS-related client interactions and analysis of 690 WMS customer references gathered over a three-year period. Additionally, 2,100 verbatim responses to Gartner’s reference survey were analyzed and categorized. From all this, a number of recurring themes emerged.

This is the second of a planned series of research notes that will explore the lessons learned from these insights and recommendations.

This research note specifically focuses on some of the key lessons for implementations after complexity level has been determined and the WMS vendor(s) have been selected.

The governance and control disciplines and methods detailed in this research can help companies mitigate the risks of excessive standardization and excessive localization, which both drive delays as well as manual workarounds and redeployments after implementation.

This research note should be reviewed in conjunction with “Prepare for Your WMS Implementation to Avoid Failure and Delays — Guidance From 2,100 Lessons Learned.”

Analysis

Restrict System Modifications by Instituting Strict Governance and Control

Successful WMS implementations depend on companies instituting strong governance and control policies and procedures to prevent unnecessary modifications. There are a few methods that can be deployed to aid this endeavor:

- A. Adapt Your Processes
- B. Build Effective Training

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Adapt Your Processes to the System Rather Than the System to Your Processes

The most common recommendation that emerged from nearly every reference was keeping a tight rein on modifications and change requests. Indeed, many clients who had implemented WMSs multiple times advised that they learned methods to do this in order to avoid the severe issues the modifications caused for their first implementation. When upgrading those same sites, or implementing the same WMS to different sites, or implementing a completely new or replacement WMS, they aimed to severely restrict modifications or, when possible, eliminate them altogether.

Organizations that have had a WMS for 10 years or more will have likely made a significant number of modifications, sometimes even to satisfy their fundamental warehousing needs. However, the WMS market is now very mature with near parity across vendors for what Gartner calls “core WMS” (see Figure 2). Vendors now support common, if not best practices, in their core WMSs, alleviating the need for many modifications. For example, the WMS may not conduct receiving in precisely the same way your operations team expects it to, or in the way they are accustomed to. However, it is highly likely it can be configured (not modified) to manage the variety of activities or outcomes that you require. This is also likely true for the majority of other core processes. Therefore, as part of the requirements gathering phase, ensure that this exercise is not merely driven by how things are done currently, but what the outcomes required from each activity are.

In this way, you have a higher opportunity to adapt your processes to a potentially improved approach rather than bending a system to reinvent the way activities are carried out now.

The WMS you are implementing may even have been designed to manage these processes in a simpler fashion.

A key way to govern the implementation process to minimize customization is to require that anyone proposing one present a business case for the value and rationale for the customization. This eliminates the “we prefer it left to right instead of right to left” type of customization where both have the same impact on the business, but one forces customization and the other not. Indeed, there are instances where even seemingly minor issues can have big impacts and these could be worth customization once other options are explored and eliminated. For example, there might be a process whereby customizing an activity that 10 seconds of time could be cut. On one transaction this might not be valuable, but if this activity is done thousands of times a day across a full year this might qualify.

Figure 2. WMS Capabilities Ecosystem
Gartner finds that a large number of unnecessary system modifications are made due to ignorance or lack of understanding of the system's capabilities. If a user has a limited understanding of what capabilities a system has, they are more likely to submit change requests to accommodate needs that could be satisfied with the standard package. In turn, if a project manager has limited understanding of a system's capabilities, they are also more likely to support such requests. Finally, vendors are often unwilling to push back on change requests because they fear damaging their customer relationship. The vendors will then agree to modify the software as requested even if they feel the customization is unwarranted.

Mitigating actions include:

- Effective training/familiarity with the system can prevent change requests through ignorance.
- Effective training can help adapt workflows to system methods or adapt workflows through configuration rather than customization wherever possible.
- Greater knowledge about the capabilities of the WMS married with a strong understanding of the business objectives of the project can mitigate the need for customization. This combination
Compel Your Selected Vendor to Provide Input Into Your Process Design

Encouraging your selected vendor to provide input into your process design can further reduce unnecessary modifications. The default attitude from vendors is to provide “keyboard consulting.” They say in effect, “tell me what you need and I can tell you how to make the system do it, or if it can’t support the need then they can customize the software to do it.” Few vendors drive implementation with a business outcome focus that might more readily identify alternative paths to support the business without customization. They are also reluctant to challenge your operations teams’ expertise on your processes, hoping to maintain a good relationship. Finally, for some vendors there is a built-in disincentive to reduce customization because they make money from it. You should formally request your vendor to challenge you and be proactive in recommending alternative approaches to solving your business needs without customization if possible. It is important to prepare your teams and the vendor for this exercise.

Recommendations (nonadversarial approaches can include):

- Advising your subject matter expert (SME) team that implementing a new WMS is an opportunity to review and improve the existing processes, not to expect just to duplicate them.

- Encourage the WMS vendor team to offer examples where similar activities have been adapted and improved to work within the system without modifications.

- Arrange vendor reference visits to similar operations that adapted their processes to the system or reference calls with vendor customers who found they had made, or unnecessary modifications for vendors who highlight their high configurability.

- Encourage the WMS vendor team to conduct user-facing demos of system capabilities in areas of concern for the SME team members.

Combined, the above techniques can significantly reduce the likelihood of delayed, costly or failed WMS implementations by proactively avoiding unnecessary modifications. They can also increase the likelihood of easier future upgrades so that you can capitalize on additional functionality without the risk of affecting any modified software.

Formalize Change Request/Modification Procedures and Maintain Accurate and Accessible Records

Although zero modifications should be the ultimate goal, there are some circumstances where they may be required; and aside from the preventative measures outlined above, control processes are necessary. However, for many organizations, as schedule or budget pressures mount, the level of
discipline may slip, resulting in unofficial changes that may not be managed or documented effectively.

**Implement a Formal Change Management and Escalation Process**

It is important that your internal project manager keeps track of all requested changes and that these are managed through a formal change management and escalation procedure. You may be able to exploit existing IT departments ticketing or help desk systems to establish levels of priority and signoff links. There should be a clear validation process and line of approval before the vendor, consultant or even your own internal team starts to make any modifications. The requests should be vetted by a technically informed operations lead, the IT lead and prioritized by the business analyst/project manager. Alternatives should be fully explored using the three techniques outlined above before approval.

However, while this procedure should be formalized, formal should not become synonymous with tortuous. Structure should not be the enemy of agility; where changes do need to be made, they should be managed through the process and agreed quickly.

Establishing upfront how the governance, approval processes, resolutions and closeout processes will happen will further reduce the risk of wasted time and resource during the implementation phases. Ideally, modifications should be reduced to functions that are truly indispensable (see "Focus on Functional Essentials When Selecting a New WMS").

**Produce Detailed and Accurate Process Maps and Records of Changes**

Produce detailed and accurate process maps of these change requirements. Thoroughly document them for internal approval/necessity assessments and archive them for future auditing. If these modifications are approved, they must be stored and properly indexed for easy access. This will help reduce issues when seeking to upgrade. Keeping properly indexed records of any modifications, such as code changes, is essential for this process.

The project manager must carry out this regular task or must nominate an implementation team member to do so. At point of upgrade it can then be determined whether the modifications need to be incorporated into the upgrade or not; the vendor may have introduced the modified capabilities into their standard product. Requested modifications that were deprioritized (perhaps due to time constraints) at the time of first implementation should also be effectively indexed and documented. At time of next upgrade these can be reviewed against new software functionality and undergo a cost-benefit analysis.
Continuously Review Existing Customization for Relevance

A key lesson from Gartner clients is that modifications are frequently made during first implementation and then continue in use for many years. Unfortunately, those responsible for instituting the modifications, or even those requesting them, may no longer be with the organization when it comes time to upgrade. The reason for the modifications is, therefore, lost; and without conducting a full, deep analysis on all processes, users are reluctant to remove them for fear of impacting other processes or parts of the software. This is a key reason for properly indexed and stored records of modifications and modification requests.

Conversely, it is not unusual that apparently “critical” modifications go unused postimplementation when users have become more accustomed to the features of the new system. While this is not as serious an issue as many others, it does result in unnecessary delays and costs to the WMS implementation.

Examples of indispensable activities may include advanced forms of cross-docking/flow through combined with other warehouse activities, such as specialized kitting or forced reallocation, that may require modification even to advanced systems. See Figures 3 and 4 for graphical representations of these examples. See “Assess Cross-Docking Opportunities to Explicitly Codify Warehouse Management System Complexity” for further details on these activities.

Figure 3. Cross-Docking and Kitting From Warehouse Locations

Cross-Docking and Kitting From Warehouse Locations

Warehouse Storage

Inbound

Outbound

Figure 4. Simplified Forced Reallocation Cross-Docking Scenarios Based on Fair Redistribution
Ideally, high-level, indispensable requirements, such as the examples above, should be captured prior to selecting the vendor and can form part of your preparation process. However, some niche requirements can be discovered during advanced blueprinting phases. Identify these requirements as soon as possible. Ensure the modifications are logged and auditable, as detailed above. Having clear records of these modifications will significantly help reduce delays and issues during the next upgrade. A discovery process can be conducted, new features may incorporate the modifications or proper records may allow the copy and pasting of the modified code into the appropriate area of the upgrade without impacting other activities. Effective logging and auditing of the modifications will also prevent confusion and focus the testing process during the initial implementation.

**Recommendations:**

- Implement a formal change management and escalation process.
- Produce detailed and accurate process maps and records of changes.
- Continuously review existing customization for relevance.

**Structure Requirements Sessions and Agree on a Specific Date or Phase for a Requirements Freeze**

**Structure and Prepare for Requirements Sessions**

A great deal of time can be saved in activities such as requirements gathering, RFI, vendor selection and alignment of appropriate software to the level of complexity of your operations.
through use of preparatory tools (see “Prepare for Your WMS Implementation to Avoid Failure and Delays — Guidance From 2,100 Lessons Learned”). However, requirements gathering is an important phase in the project and should be conducted in a detailed manner.

In preparation for the requirements session, the level of complexity for each environment should be determined. Assessing your warehouse operations complexity level against each of the 10 dimensions (see Figure 5) helps to focus project teams on the areas driving the greatest level of complexity in your “as is” scenarios. These will help determine how to map the “to be” activities with your WMS vendor and extract requirements.

**Figure 5. The 10 Dimensions of Warehouse Complexity**

The 10 Dimensions of Warehouse Complexity

- Warehouse Size
- Warehouse Constraints
- Warehouse Layout/Location
- Volume of Work
- Product Characteristics
- Cycle Time Throughput
- Variability
- MHE Automation
- Types of Work
- Adaptability

Additionally, using Gartner's Warehouse Operational Complexity Model (see Figure 6) during the first requirements gathering session can help drive areas of consideration for evolving requirements other than purely operational ones. Considerations include external factors such as growing customer expectations and procurement and supplier requirements for inbound materials. It also includes operational support enablers, such as equipment and yard management; management oversight, such as product flow and labor management as well as interfaces; and communication and integration considerations, such as ERP, transportation and retail stores.

**Figure 6. Warehouse Operational Complexity Model**
See "Determine Warehouse Operational Complexity to Maximize Operational and Warehouse Management System Efficiency" for more information on the complexity drivers and requirements illustrated in Figure 6.

Ideally, all related stakeholders should be involved in the kickoff and requirements gathering sessions, and these could be concluded in three sessions. The reality, especially for larger organizations, is that the process can take some weeks and requirements can evolve significantly the greater the number of stakeholders that are consulted. Additionally, business circumstances, such as external factors, may change during the process bringing a new range of requirements.

The first two kickoff and requirements workshops should be organized with the WMS vendor, the warehouse operations team and the main stakeholders impacting on and impacted by the deployment of the new WMS. During these workshops, the participants should be reminded of the reasons for the new or replacement WMS and the current (as is) and future (to be) warehouse operational processes, dependencies and systems landscape should be captured. This capturing exercise would effectively be an advanced and detailed mapped version of Figure 6. The maps and findings should be thoroughly documented and shared with all participants for final validation.
after the sessions. Consider including highly experienced process mapping colleagues with lean value stream mapping backgrounds in these sessions.

Individuals with significant experience in these activities and their impacts must be included in the sessions. These include individuals from key business areas, such as IT, and each of the key areas in the warehouse environment, such as inbound, picking, packing, inventory management, returns and operational support. At a minimum, a high-level map of all warehouse activities should be prepared for the “as is” session with space for further completion by all parties in collaboration during the session. The same can be done for the “to be” session. This will reduce the risk of incomplete understanding of processes by the vendor and internal stakeholders.

**Requirements Freeze**

Constantly changing requirements drive up costs and frequently create delays in WMS implementations. Many references cited the need for a requirements freeze in order to deliver the implementation on time. However, this should not be an arbitrary date determined by the IT department or proscribed due to timelines of other projects (e.g., ERP) seen as more pressing. The requirements freeze should be agreed on by all stakeholders and managed to the final blueprinting phases. The specific date for the requirements freeze should then be communicated (typically with a two-week warning) in the final stages of blueprinting/“to be” process design.

Any further changes should be managed through the change request process outlined above. However, if the WMS implementation project is likely to be delayed significantly for external reasons, the project team should revisit and update the requirements listings and amend “to be” processes as necessary. If the project itself is frozen for a long period, this time may be used to make amendments and can be structured in order to limit change requests at a later point. Rather than conducting case-by-case change requests during this period, the whole blueprint overhaul approach should go through a single approval process with the senior stakeholder team.

**Recommendations:**

- Prepare for the requirements sessions by reviewing Gartner’s 10 Dimensions and Warehouse Operational Complexity Models.

- Document and map out known “as is” and “to be” processes on a high level prior to the workshops to direct information gathering in a constructive manner.

- Incorporate key members of the vendor’s implementation team and functional experts from within your organization, including those from other departments who impact on or are impacted by the change.

- Agree to a date or phase for the requirements freeze while preparing a method to update processes if the project is delayed significantly for external reasons.

**Evidence**

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1 Magic Quadrant/Critical Capabilities Customer Reference Survey. This was a detailed survey of vendors’ reference customers. Around 340 end-user companies completed a standard online survey in 2019; 190 in 2018; and 161 in 2017. This incorporated specific questions and verbatim responses related to how the WMS implementations could have been improved.

Disclaimer: Results do not represent “global” findings or the market as a whole, but rather reflect the sentiment of the respondents and companies surveyed.

Gartner used multiple additional data sources for this research:

- Vendor surveys, which included more than 300 detailed questions, incorporating specific sections related to implementations and customer success/risk factors. Each vendor’s response was assessed based on Gartner’s view of its importance.

- Detailed information on key WMS areas gathered from vendors and consultants during multiple briefings with Gartner analysts, which also included demonstrations of vendors’ solutions.

- A detailed review of additional functional and solution documentation provided by selected vendors.

To supplement and validate these data sources, Gartner used feedback from the approximately 2,000 WMS-related client interactions and inquiries we received over the last three years.

Recommended by the Author

Prepare for Your WMS Implementation to Avoid Failure and Delays — Guidance From 2,100 Lessons Learned

Magic Quadrant for Warehouse Management Systems

Toolkit: Stratify Your Warehouse Operations to Determine the Right-Fit Warehouse Management System and Improvement Strategy

Answer These 7 Questions to Position the Strategic Arguments for a New or Replacement WMS

How to Determine Impacts, Benefits From Recent Acquisitions, Restructures and Investments in the WMS Market

Select From the 8 Software Deployment Options to Support Warehouse Automation and Robotics

Market Guide for Yard Management

The Rise of the Pop-Up Warehouse, and What Software to Use to Manage a Low-Complexity Operation

Focus on Functional Essentials When Selecting a New WMS

Critical Capabilities for Warehouse Management Systems

Recommended For You
How to Build Agile ERP Support With Product Teams

Focus on Six Capabilities to Master Supply Chain Customer Collaboration for Value Creation

Toolkit: How to Objectively Evaluate Competitors

Digital Goldman Sachs: Five Lessons from Goldman Sachs and What They Could Herald for Business

Open Source Change: Driving Organizational Change in the Digital Era

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