

Management Outlook



WMS-Market 2005

Jeroen van den Berg Consulting

The expectations among warehouse management system (WMS) vendors were sky-high for last year. The demand for new systems had stagnated in the new millennium, but 2004 was slated to be a golden year with, among other factors, the introduction of the European General Food Law with its strict track-and-trace rules. Reality could not have been farther from the early hopes. WMS market growth was notable only by its complete absence. Jeroen van den Berg Consulting examined the causes for this crushing disappointment, and came up with remarkable conclusions.

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Imagine that you are responsible for the logistics of your enterprise. Like almost everyone else in that position, you (we assume) believe that the warehouse operation could be improved considerably. Delivery lead-times could be shorter, delivery errors could be substantially fewer and, above all, productivity could be higher. What would you do?

You would begin by investigating opportunities for optimisation. You examine available data in the information systems, primarily to reach the conclusion that too few data are available for a thorough analysis of bottlenecks.

What remains is an analysis on gut feeling. The dock area is overloaded, and that is a problem. Available storage space is limited, and, considering the regular complaints of customers, the order pickers are not perfect, either. Going forward, you, one-by-one, build a list of potential improvements. A stunning realisation strikes you. The warehouse management software must be modified to support any of these vital improvements. You made the quick wins that confer hero status a long time ago. And, you are not feeling much like a hero anymore.

Now you find yourself in one of the following four situations:

- a. You have specifically developed warehouse management software that has been in place for years – the legacy syndrome
- b. You have been using, also for many years, the warehouse management (WM) module of the ERP, with the usual limited capabilities.
- c. You have a WMS that was heavily customised, again years ago, to meet the customer, product, and order profiles of that generation.
- d. You use a WMS/WM-module with little customisation.

In scenario d, you are actually quite well-off. By configuring parameters in the system, a number of optimisations should be easily within reach. Also,

larger modifications, such as a new customer interface or the introduction of RF scanning are, with some help from the vendor, typically not problems.

How different does your world look in situations a, b and c? Much. And definitely not prettier. Every change must be programmed specifically, which costs time and money. As alternatives, you could look for a standard WMS or a modern WM module from your ERP vendor. However, the implementation of the system typically is more difficult than first thought. It will take six months to a full year, during which time you must keep operations running smoothly while your most valuable people spend their time on a WMS project. What do you do? Do you continue with the present software, or do you take on the challenge and implement a new WMS?

The above line of thinking characterises the issues that managers are wrestling with while the vendors are attempting to book sales in the hoped-for banner year. There is, as everyone agrees, an enormous need for good warehousing software, but logistics managers have often not been able to face up to the monetary, resource and time demands of implementation and change.

2004 remained a more-or-less typical year, in which logistic managers showed a more than average interest in WMS. The General Food Law was about to be introduced as of 1 January 2005 with its strict set of track-and-trace rules. A WMS lets you track every individual box, while current software in many food manufacturers only tells them which lots were shipped in a given day or week. A WMS, therefore, provides a significant advantage when product is recalled from the market.

The General Food Law, however, puts no limitation on the quantity that is withdrawn so that for most businesses the advantage of a lean recall did not outweigh the effort of a WMS

WOLF Online

Jeroen van den Berg Consulting and the Supply Chain Group annually investigate the WMS-market. In this report, we discuss the results for the Benelux market in 2004. The survey is updated and available via the freely accessible WMS selection engine WOLF (www.SupplyChainGroup.com). As input for WOLF, the WMS vendors evaluated their position in the WMS-market by dividing scores among twenty multiple choice questions. In total, over fifty vendors from Europe and North-America participated in the survey.

| Vendor | System | New customers '04 | New warehouses '04 | Total customers | Total warehouses |
|---|------------------------|-------------------|--------------------|-----------------|------------------|
| 1. SAP | SAP R/3 LES | 30 | 40 | 200 | 400 |
| 2. Kardex | Powerpick 5000 | 15 | 15 | 100 | 100 |
| 3. Van Boxtel Software | VBS-WMS | 10 | 15 | * | * |
| 4. Centric - Locus | Locus WMS | 6 | 18 | 46 | 68 |
| 5. IBS | DYNAMAN | 6 | 9 | 28 | 34 |
| 6. MARC Global | MARC WMS | 6 | 6 | 19 | 51 |
| 7. Manhattan Associates | MA WMS | 5 | 7 | 17 | 29 |
| 8. WICS Solutions | WICS | 5 | 6 | 30 | 37 |
| 9. Modulair Easy Access | Easy Logistics WMS | 5 | 6 | 20 | 23 |
| 10. RedPrairie | DLx® Warehouse | 5 | 5 | 25 | 25 |
| 11. Interchain | Chainware iWarehousing | 4 | 6 | 105 | 405 |
| 12. CSB-SYSTEM | CSB-Inventory | 4 | 6 | 85 | 85 |
| 13. INTRIS | TRIS | 4 | 6 | 15 | 25 |
| 14. Fujitsu Services | MLS | 4 | 4 | 41 | 87 |
| 15. Qurius NC | Navision Q-WMS | 3 | 3 | 43 | 43 |
| 16. Vanderlande Industries | VISION | 3 | 3 | 7 | 7 |
| 17. Astrosoft | Nereus | 3 | 3 | 5 | 5 |
| 18. DCS Transport & Logistics Solutions | DCSi.Logistics WMS | 2 | 3 | 24 | 45 |
| 19. Consafe Logistics | Sattstore | 2 | 3 | 20 | 35 |
| 20. Rasputin MagazijnbeheerProjecten | Rasputin | 2 | 3 | 13 | 16 |
| 21. Inther Logistics Engineering | Inther LC | 2 | 2 | 27 | 32 |
| 22. CAL Consult | CAL WMS | 2 | 2 | 12 | 20 |
| 23. Viastore | viad@t | 2 | 2 | 10 | 12 |
| 24. Still | MMS | 2 | 2 | 5 | 7 |
| 25. DCS Transport & Logistics Solutions | DCSi.Logistics TWS | 1 | 3 | 3 | 12 |
| 26. SSA Global | SSA WM | 1 | 3 | 25 | 40 |
| 27. Swisslog | WarehouseManager | 1 | 1 | 96 | 100 |
| 28. e-Buzz | Easy Order® WMS | 1 | 1 | 6 | 6 |
| 29. Oracle | Oracle WMS | 1 | 1 | 6 | 6 |
| 30. SAVOYE | LM7 | 1 | 1 | 6 | 6 |
| 31. IMI | IMI Warehouse | 1 | 1 | 3 | 6 |

Table 1. Number of customers and warehouses in the Benelux per vendor (*= not specified).

implementation. Another recent requirement comes from the retailers who demand that producers provide an electronic shipment notification and unique SSCC barcode labels on pallets. Again, the producers did not opt for a new WMS, but, instead, complemented their existing software with an application that prints barcode labels and then sends the needed information.

Mid-Market

Table 1 shows the market figures in 2004 for the Benelux ranked by the number of new customers in 2004. The vendor with the largest number of WMS implementations in 2004 was SAP. If we would exclude SAP, then the number of new customers and new warehouses in 2004 remains equal to 2003 (cf. Van den Berg, 2004). Consequently, on balance, SAP was responsible for all 2004 market growth.

SAP established its growth mainly in the mid-market. Many WMS vendors address the high-end market with warehouses with many operators and complex product flows. For years, this segment has shown a steady demand with little room for growth. In comparison, the demand in the mid-market had always lagged, providing a lucrative target for whomever could successfully penetrate it.

The mid-market obviously is not eager for large and complex WMS projects. A lead-time of two to three months is the practical limit of their tolerance. It is up to the WMS vendors to provide an attractive proposition to the mid-market: Rapid implementations against a competitive price. This requires that the WMS can be configured within a short time, while interfaces with other business systems are rapidly deployed by a small project

| Communication method | % 2004 | Difference with 2003 |
|---------------------------|--------|----------------------|
| 1. Barcode scanning by RF | 43% | +3% |
| 2. Paper lists | 18% | -3% |
| 3. Pick-to-light | 14% | -2% |
| 4. RFID | 13% | -3% |
| 5. Voice recognition | 12% | +4% |

Table 3. Popularity communication methods among WMS vendors in 2004 versus 2003.

team with tight project management on scope and choices. For instance, Van Boxtel Software, in the top 3 over 2004 with ten new customers, has succeeded by specialising in fast implementations.

Seven Sales Propositions

How do vendors distinguish themselves in the market? We asked the vendors to characterise their unique selling points by assigning scores. Table 2 shows the weight that the vendors assigned to the seven sales propositions. The vendors view as most important the broad functionality of their system and the integration of supplementary functions such as a transport, customs or order management. These are clear arguments directed to the top segment. The mid-market prefers a rapid implementation, a sharp price and easy to install technology. These arguments score relative low on places 3, 6 and 7, respectively.

The current approach of offering extensive functionality has led to a constant market. The vendors do large projects and provide supplementary services to their existing customers which guarantees a sufficient trade volume. However, for the long term a growth strategy is vital. Considering their limited size of many vendors, growth is an obstacle by itself. Here cooperation with implementation partners is an outcome. Something we rarely see in the WMS market. Who takes on the challenge or does one let the (mid-)market to SAP?

Voice Recognition

There is a lot of media attention on voice picking. Although the number of applications in the Benelux is still below the dozen., recent applications at retailers Kruidvat and Carrefour,

| Sales Propositions | % |
|--|-----|
| 1. Broad functionality | 18% |
| 2. Integration of supplementary functions | 18% |
| 3. Rapid and simple implementation | 17% |
| 4. Continuity of vendor and system | 16% |
| 5. Partnership in support after implementation | 13% |
| 6. Price | 12% |
| 7. Technology, connectivity and scalability | 9% |

Table 2. Popularity of sales propositions among WMS vendors.

and wholesaler Corporate Express show that voice recognition is a promising technique.

Table 3 shows the popularity of the identification methods and the difference with last year. Here we see that voice recognition indeed is the rising technology. RF scanning still dominates. After last year's hype, the popularity of RFID diminishes on the short term. We will have to wait several years until we see a broad application of RFID.

Application Service Providers

Application Service Provision (ASP) is named as interesting sales model for some time. The user does not pay for the software, only for its use, e.g. per transaction. Selling the software is by far the most popular payment structure among the vendors (Table 4). Nevertheless, ASP has finally earned its right to exist with 15% of the scores. The most active application services providers are: e-Buzz, IBS and DCS with the TWS system.

Trends

We asked the vendors for their most important developments in the last two years and what their developers have in store for the coming two year. Table 5 shows the most important developments.

The top 5 in the last two years (2003-2004) respectively were: Improved support of RF (radio frequency) scanning, expansion of advanced warehouse functions, integration of material handling systems, connectivity and internet. RF-

| Payment Structure | % 2004 |
|----------------------------------|--------|
| 1. Purchase | 72% |
| 2. Application service provision | 15% |
| 3. Rental | 13% |

Table 4. Popularity of payment structures among WMS vendors.

scanning gradually has become an indispensable aid in warehouses. It establishes a higher efficiency through the direct control of the operators as well as an error reduction through the real-time verification. Most vendors offer RF as standard WMS function.

The attention for expanding the warehouse functions speaks for itself in the WMS-market. However, striking is that the advanced functions such as cross-docking, merge-in-transit and value added logistics on position 2 receive more attention than the core warehouse functions such as receiving, put away and order-picking on position 6. Also noteworthy is the attention for the integration of the WMS with automated material handling systems such as roller conveyors, automated cranes and robots. Where in the past a limited number of specialized vendors focused on automated warehouses, we now see that nearly all vendors enter this segment.

The connection of the WMS with other information systems often is a difficult aspect of the implementation. Therefore, the development efforts in connectivity certainly are in place. Internet, on

| Position '05-'06 | Position '03-'04 | New Development | Position '05-'06 | Position '03-'04 | New Development |
|------------------|------------------|--------------------------------|------------------|------------------|-------------------------------|
| 1 | 12 | RFID | 11 | 17 | Transportation planning |
| 2 | 9 | System integration | 12 | 19 | Dock & yard management |
| 3 | 4 | Connectivity | 13 | 10 | Management information |
| 4 | 18 | Technology | 14 | 11 | Configuration |
| 5 | 3 | Integration MHS | 15 | 8 | Task Management |
| 6 | 5 | Internet | 16 | 13 | Mobile devices |
| 7 | 2 | Advanced warehouse functions | 17 | 16 | Tracking & Tracing |
| 8 | 6 | Core warehouse functions | 18 | 20 | Pick-to-light |
| 9 | 7 | Capacity planning & monitoring | 19 | 1 | RF (radio frequency) scanning |
| 10 | 15 | Voice picking | 20 | 14 | Customs |

Table 5. Trends in past and future according to the WMS vendors.

position 5, is a powerful aid for distant access to information on the goods flow. Consider customers who track the status of their orders via the web, suppliers who pre-announce their shipments online, or carriers who reserve a delivery time slot via a web portal. Finally, notice the small attention for tracking & tracing, considering the nearby introduction of the General Food Law. The requirements by the new law evidently were not a challenge for the systems.

According to the vendors, the most important developments for the coming two years (2005-2006) successively are: RFID, system integration, connectivity, technology and integration of material handling systems. The vendors have plans for considerable RFID experimentation. For a broad application of RFID we have to wait several years until the technology has become sufficiently reliable and affordable.

System integration also receives the full in the coming years. Vendors add functions such as order management, transportation, production or finance to the WMS. This is a successful strategy for delivering supplementary modules and services to existing customers. Further, note the increased attention for the technological development of the systems. Vendors add a modern user interface to their WMS or revise the architecture of the system. The system functionality, which has been developed over the years, remains but receives a new appearance. The driving forces behind these developments are new technologies such as dotnet and XML. RF, on the other hand, gets considerably less attention of the developers. After the efforts of the last two years, they spend their time in the coming years on new identification techniques as RFID, pick-to-light and voice recognition.

Warehouse Planning & Control

We want to give special attention to the warehouse planning & control, an essential part of WMS that

enables significant performance improvements. We consider the cycle in Figure 6 as a best practice in warehouse management. The cycle recognises four levels. The first level is capacity planning. One or several days in advance the WMS estimates the workload and translates it into personnel requirements.

The second level is wave planning & monitoring. At certain moments during the day, the warehouse planner releases tasks to the warehouse operation (wave planning). Then the planner tracks the progress of the tasks (monitoring) and intervenes via the WMS by assigning operators to other activities or by increasing the priority of open tasks.

The third level is task management. The WMS automatically assigns tasks to the operators by evaluating the urgency and efficiency.

The fourth and final level is performance management. The WMS calculates management information on the past day. The warehouse manager shows the performance indicators to the operators and analyses the bottlenecks. Consequently, the warehouse planning & control cycle leads to a continuous optimisation process.

If we look at Table 5, then we see that the WMS functions that support the warehouse planning & control cycle – capacity planning & monitoring, task management and management information – all receive less attention in the next two year. This is worrisome. Users motivate the vendors to develop these functions. Something that should happen more often.

Architecture

Also we asked the vendors to characterise the architecture of their system. The choice is on the one hand between a best-of-breed WMS and an integrated system and on the other hand between a standard and a custom-made system (Table 6). A best-of-breed WMS is specialized in warehouse management and generally is linked to other systems in a business setting. An integrated system not only supports warehouse management, it also provides other functions such as production, transportation management, customs or finance.

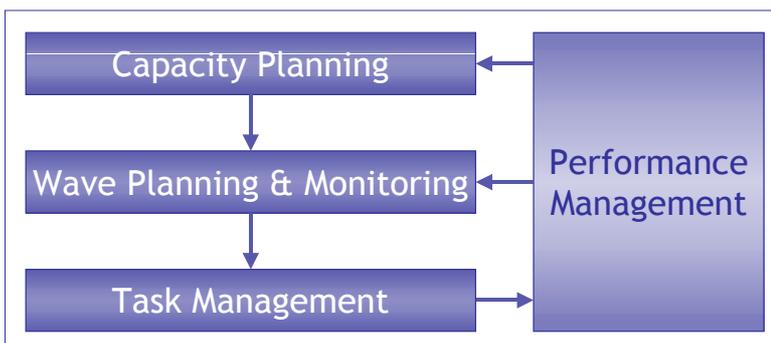


Figure 6. Warehouse planning & control cycle.

In comparison with last year a strong shift has taken place from best-of-breed WMS to integrated systems. This coincides with the trend that WMS vendors extend their system with related functions,

while ERP vendors more and more focus on the WMS market. Also on the vertical axis, we see a large shift compared to 2003 from custom-made systems to standard software.

| | Best-of-Breed | Neutral | Integrated |
|--------------------|--|----------------|--|
| Standard | CAL Consult Centric-Locus Consafe Logistics Fujitsu Services IMI Inther Manhattan Associates MARC Global RedPrairie SSA Global Vanderlande | IBS | Astrosoft CSB-SYSTEM DCS WMS e-Buzz Interchain Oracle Still |
| Neutral | Rasputin Van Boxtel Software Viastore SAVOYE | | DCS TWS INTRIS Kardex Modulair Easy Access Qurius SAP Swisslog WICS |
| Custom-made | | | |

Table 6. Positioning of WMS vendors by integration en standardisation of their systems.

Conclusions

- The development that vendors integrate supplementary functions in their WMS, has continued.
 - A broad application of RFID in warehouses is not to be expected on short term. WMS vendors start experimenting with this technology of the future.
 - The focus has shifted to voice-picking as a promising technology.
 - WMS vendors must pay more attention to the warehouse planning & control cycle. The cycle of planning, control, execution and feedback is a best practice in warehouse management and leads to a structurally better performances.
- Despite the imminent introduction of the General Food Law, the WMS market hardly grew in 2004.
 - There was a lot of interest in WMS, in particular from the mid-market, but potential buyers did not want to face the time and expenses of an implementation.
 - WMS-vendors can break out of this impasse by strongly simplifying their implementations. We are curious which vendors will uncover this hole in the market.

References

Berg, J.P. van den, WMS Market 2004, *Management Outlook Report*, www.JvdBconsulting.com, 2004.

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