Management Outlook

WMS-market 2008

Jeroen van den Berg Consulting

What is going on in the Benelux WMS-market? What are the trends and developments for the years to come? Which propositions and strategies are followed by WMS-vendors? Jeroen van den Berg Consulting examined 28 WMS packages and came up with remarkable conclusions.

The most prominent trends at this moment are the breakthrough of voice-technology, the increasing intelligence in WMS, that enables a chaos-tolerant warehouse operation and the acceleration of implementation projects.

Jeroen van den Berg Consulting

Winthontlaan 200
3526 KV Utrecht
The Netherlands

Phone: +31 (0)30 850 60 55
Info@JvdBconsulting.com
www.JvdBconsulting.com

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Trends

We will start with the good news. Are you looking for a new WMS, or are you reconsidering your WMS-strategy, now is the time to invest in a new system! The return on investment in WMS has never been this good.

The current market trends primarily focus on cost-savings and quality improvements. The three most prominent developments at this moment are:

- Breakthrough of voice-picking
- Chaos-tolerant WMS
- Acceleration of implementation projects

These developments make processes more efficient and reliable, give management a better control over the operation and reduce the necessary investments in WMS.

Voice-picking

Currently, warehouses adopt voice-picking at a rapid speed. Voice-recognition technology increases productivity and lowers the error rate. This explains the enthusiasm in the market. Especially retailers, with labor-intensive item-pick operations, massively invest in this hands-free technology. For instance, Dutch grocery retailer Albert Heijn has started a major roll-out of voice in 2007. They aim to equip 4,000-5,000 order-pickers with hands-free equipment. However, voice is also seen in other verticals, for instance in cold storage environments where barcodes ice up. Further, we more and more see voice applications in smaller warehouses.

> ***"The costs of voice-technology are roughly a factor 1.5 compared to RF"***
> Huub van der Linden, Zetes

Voice-picking enhances productivity levels and reduces the number of errors. Productivity improvements can be attributed to the identification and registration capabilities of the technology. Contrary to solutions using paper and RF, identification and registration are conducted in parallel with the actual product handling. As one can imagine, this saves a lot of time. The synchronicity also helps to prevent picking errors, as the order-picker cannot be distracted between subsequent actions.

These advantages make voice well suited for labor-intensive processes. However, voice is less practical when long data strings need to be entered into the system, e.g. in the receipt process. Here RF and perhaps RFID might be better options. In the future, we can expect that technologies such as voice, RF, RFID and pick-to-light are used more and more in combination. In this way, we capitalize on the advantages of the various technologies.

> ***"The gameboy generation feels comfortable with voice. At home they use iPods and cell phones"***
> Hanny Kapelle, Wehkamp

Note that voice technology is still under development and that the number of system vendors is limited. So bear in mind that some technical challenges may arise during your project. Nevertheless, we wholeheartedly recommend the adoption of voice. We advocate that the voice system should be integrated in the WMS. A separate voice system linked to the WMS makes it complex to control processes, since the control logic is distributed among two systems.

> ***"The entry of many digits, serial numbers for example, may be laborious with voice"***
> Peter van Minnen, Methec

WOLF Online

Each year, Jeroen van den Berg Consulting analyses developments in logistics. In this report, we discuss the WMS market in the Benelux with a review of 2007 and preview into 2009. The results of the research are incorporated in the freely accessible WMS search engine WOLF (www.JvdBconsulting.com). In WOLF, WMS-vendors position their systems in the market by distributing scores among twenty different themes. In total twenty-eight WMS packages were evaluated.

The following vendors participated in the WOLF 2008 survey:

#	Vendor	System	Website
1	a-SIS	LM7	www.a-sis.com
2	BLOXX IT	Accellos One 3PL	www.bloxxit.nl
3	BLOXX IT	Accellos One Warehouse	www.bloxxit.nl
4	CAL Consult	CALwms	www.cal-consult.nl
5	Centric Logistics Solutions	Locus WMS	www.centric.nl/logistiek
6	Consafe Logistics	Astro WMS	www.consafelogistics.nl
7	Consafe Logistics	SattStore WMS	www.consafelogistics.nl
8	Davanti Warehousing	MLS	www.davantigroup.com
9	De Clercq Solutions	Objective WMS	www.declercqsolutions.eu
10	Egemin	E'WMS	www.egemin.com
11	Exact Easy Access	Easy Logistics	www.exactbarcode.nl
12	Exact Easy Access	Pick-IT	www.pick-it.nl
13	Four Soft	4S eLog	www.four-soft.com
14	IBS	Dynaman	www.dynaman.be
15	Infor Global Solutions	SCM Warehouse Management	www.infor.com
16	Kewill	Kewill Warehousing	www.kewill.com
17	Lawson Software	M3 Warehouse Mobility	www.lawson.com
18	Manhattan Associates	MA ILS	www.manh.com
19	Manhattan Associates	MA WMS	www.manh.com
20	mYuice	ProLogistics	www.myuice.nl
21	Pelcos	KDL-WOS	www.pelcos.eu
22	Qurius	Q-WMS	www.qurius.com
23	RedPrairie	E2e Warehouse Management	www.redprairie.com
24	SAP	SAP EWM	www.sap.com
25	SAP	SAP LES	www.sap.com
26	Vanboxtel	Vanboxtel-WMS	www.vanboxtel.nl
27	VCD Automatisering	WISE	www.vcd.nl
28	WICS Solutions	WICS WMS	www.wics.nl

> ***"Barcode scanning in warehouses is over 50 years old. Still there are new applications"***
> Ap van Gool, Astrosoft

We asked the WMS-vendors for their prime target group by communication technology. Table 1 shows that many vendors still expect a lot of demand for RF, but that the interest in voice is rising. The popularity of paper, pick-to-light and RFID is decreasing.

Table 1 Target groups of WMS-vendors by communication technology in 2008 vs. 2005.

'08	'05	Communication technology
1	(1)	RF
2	(5)	Voice
3	(2)	Paper
4	(3)	Pick-to-light
5	(4)	RFID

> ***"Put-To-Light, Sort-By-Light en Cart-Based PTL are interesting variants of PTL"***
> Paul Hermsen, Inther

Chaos-tolerant WMS

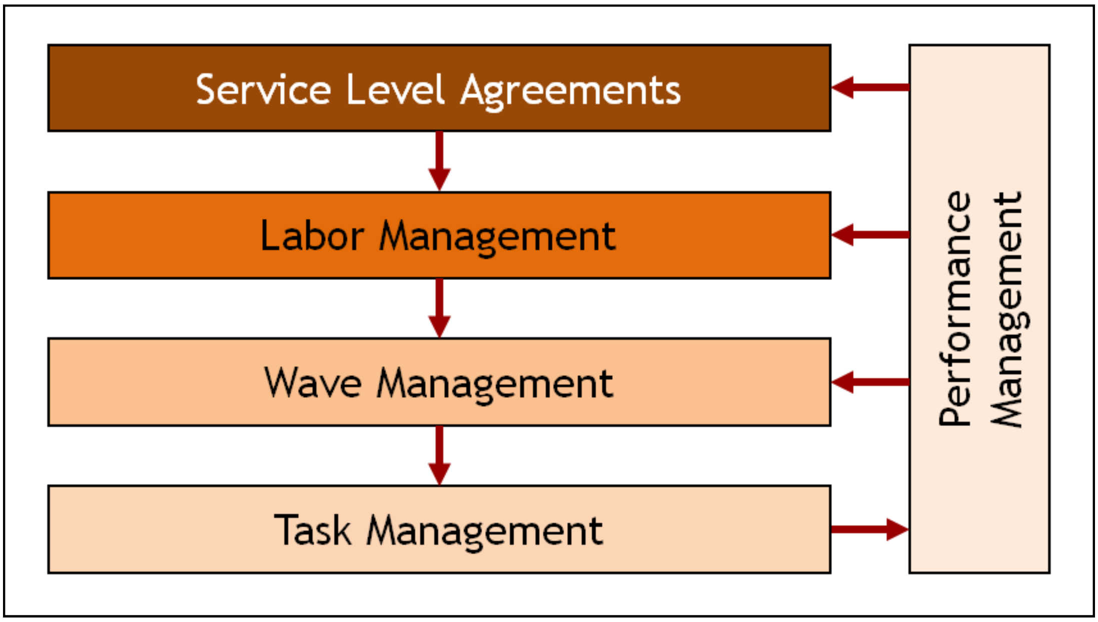
The book "Integral Warehouse Management" by Jeroen van den Berg introduces the warehouse management cycle. This is a new model for the integral control over warehouses. The model combines strategic, tactical and operational control in a closed feedback loop. Intelligent IT, which supports sophisticated planning and control, has a prominent role in the model. The closed-loop model makes it possible to manage complex situations in an effective and consistent manner. The WMS becomes *chaos-tolerant*.

At the strategic level, strategic goals are formulated and translated into service level agreements (SLA's), rates and performance standards. Tactical planning, also referred to as *labor management*, computes the required workforce for the forthcoming day or week (capacity planning). In the USA, labor management systems (LMS's) are widely used. Well-known vendors are RedPrairie and Manhattan Associates. The LMS analyzes existing orders and demand forecasts and calculates the resulting workload. In addition, LMS's provide detailed performance indicators on operator productivity. Labor management has not yet made a breakthrough in the Benelux and the rest of Europe. Nonetheless, we expect a strong growth. Also some local vendors are engaged in the development of labor management systems.

For operational control, the warehouse management cycle differentiates between wave and task management. Wave management concerns the central warehouse control on an hourly basis, whereas task management comprises the real-time assignment of tasks to operators and material handling systems.

Effective wave management requires a different organizational structure. In a traditional organization, warehouse supervisors control the activities on the floor. These supervisors are to be replaced by a *warehouse planner*, who has a central

The warehouse management cycle integrates strategic, tactical and operational management into a closed feedback loop. Decisions about the number of people needed, and the tasks they have to fulfill are supported by means of integral control. KPI's provide feedback on performances.



> ***"There is a lot of demand for labor management and workload balancing"***
> Jack Vervoort, Infor

view on all activities via the WMS. The warehouse planner can use the information in the WMS to secure labor progress and to exchange operators between sections based on actual workloads. This may seriously enhance the operator utilization rates. Unfortunately, the overview screens of most WMS's still lack the necessary information.

Paperless Era

Task Management is the WMS function that manages the assignment of tasks to operators. WMS vendors made significant advances in this area over the last year. In the old days, tasks were assigned to operators by means of paper slips. The introduction of RF, and more recently voice, enabled real-time task assignment. This offered many new opportunities for warehouse optimization.

In the "paper" era, task control was restricted to releasing the workload, i.e. printing paper slips. This methodology may be characterized as a *push* principle. Unfortunately, WMS-vendors continued to pursue this principle for a long time despite the introduction of paperless techniques. They developed sophisticated functions for releasing the workload, where priorities were assigned in advance. Subsequently, systems used complicated task assignment rules which involved weights and automatic priority increases. In practice, however, these rules were difficult to configure in a satisfactory manner. Consequently, there were few warehouses where the WMS automatically ran the entire task assignment. Often the judgment of warehouse operators was required to guarantee a smooth flow of goods.

Instead of focusing on order release, systems should aim at the deadlines of the various tasks on hand. We call this the *pull* principle. We already proposed this approach several years ago, for example see our Management Outlook report "Dynamic Routing" which was published in 2002.

In 2007 various vendors introduced deadlines in their WMS packages. This made the logic behind task management much more intuitive and easier to configure. It might seem trivial, but the pull policies are a major step towards *chaos-tolerant* warehouse management.

Product Development follows Trends in Warehousing

Table 2 shows the most important trends in product development over the years. In 2003, a lot of attention was paid to RF and material handling control systems (MHCS). Nowadays, these techniques have become standard functions. After the hype in 2004, RFID development ranked number one in 2005. In the same year, WMS vendors expanded their packages with functions for the transportation planning, order management, customs, event management and supply chain planning. WMS packages became SCE-suites.

Since 2007, the emphasis is on technology (SOA, dotnet, web) and connectivity (EDI, EAI). These techniques simplify implementation processes, system maintenance, the daily routines as well as the collaboration throughout the supply chain. Clearly, these are useful aids to accelerate WMS implementations. Furthermore, the top 5 for 2007 (not fully listed in Table 2) consists of KPI's on rank 3, wave & task management on rank 4 and voice on rank 5. The former two are important pillars of a chaos-tolerant WMS. For the next two years labor management is one of the favorites. In summary, we may say that vendors quickly respond to market trends.

Table 2 Most important trends in product-development over the years.

	2003	2005	2007	2009
1	RF	RFID	Technology	Technology
2	Advanced WMS	SCE-suite	Connectivity	Labor management
3	MHCS	Connectivity	KPI's	Advanced WMS

Performance Management

The final step in the warehouse management cycle is performance management. Management information closes the loop. Sound management information gives managers and warehouse staff more insight into their operation, it helps to motivate operators and is essential for achieving continuous improvement.

Over the past year, many vendors paid attention to their system's capabilities for delivering management information and KPI's. The WMS registers detailed information on the process flow in the warehouse. WMS vendors offer tools for distilling management information from these data. Some vendors use their own reporting tools, while others provide a *data warehouse* that can be analyzed by means of Excel or professional business intelligence such as Business Objects, Cognos or QlikView. In particular, the reporting tools offer various standard reports that allow a quick start.

Accelerated Implementation

The WMS market still is highly competitive, with many different vendors. We asked the vendors how they try to distinguish themselves in the market? Table 3 lists the most prominent value propositions. On top of the list is the capability to implement in a fast and reliable manner. Table 4 shows that the relative share of the implementation services in the overall project costs has increased over the years. While the costs for hardware (computers, scanners etc.) and software licenses decreased, there hardly was an efficiency gain in the implementation services. This situation is expected to change soon.

In their attempt to accelerate implementations, vendors focus first on technological product development. Technologies such as SOA (service oriented architecture), EAI (enterprise application integration), installation wizards, workflow tools and document generators are highly popular. These tools help to save time during installation, configuration and integration. Moreover, customer-specific enhancements may be prevented or become easier to realize.

We also see vendors offering pre-configured versions of their WMS for specific verticals, or "stripped" versions where advanced functionalities have been excluded. Some vendors offer separate WMS's for the high-end and midmarket, whereas others serve both segments with a single WMS.

Table 3 Most important market-propositions of WMS-vendors in 2008 vs. 2005.

'08	'05	Market-proposition
1	(3)	Implementation
2	(2)	Functionality
3	(4)	Continuity
4	(1)	Integration
5	(5)	Partnership
6	(6)	Price
7	(7)	Technology

What else can vendors do to cut implementation times? A big win may be achieved in the project approach. E.g., when developing a functional design, we may shortcut many lengthy discussions by considering the capabilities and incapabilities of the WMS at an early stage. Working towards solutions in a creative and pragmatic manner saves lots of time. Clearly, this requires commitment and quick decision-making from the company adopting the WMS.

Our advice is to seek a 90% fit instead of 100%. Typically, the final details demand substantial efforts with often minor results. In our opinion, it is only allowed to deviate from this rule when a solid business case is presented.

> ***"EAI and SOA are results of a stronger emphasis on supply chain collaboration"***
> Marcel te Lindert, Reed Business Information

Market Focus

Twenty-eight packages from twenty-three different vendors were analyzed this year. Table 5 shows all packages, subdivided by their primary market focus. First, we distinguish between SCE

Table 4 Typical distribution of the project costs for a WMS implementation in 2008 vs. 2000.

Share	'08	'00
Software	25%	33%
Hardware	25%	33%
Services	50%	33%

specialists who aim at the top segment of large distribution centers and SCE specialists who focus on the midmarket. Despite their primary focus, we regularly see direct competition between vendors from different groups.

We see that ERP vendors promote their WM-modules primarily within their own customer base. ERP vendors Infor and VCD hold on to a different strategy and are therefore found among the SCE specialists. Both vendors offer their WMS as a separate (best-of-breed) system, not as an integrated module of their ERP. SAP-EWM, the new trump card of SAP, also is a best-of-breed system, in contrast to the integrated SAP-LES.

Finally, the material handling specialists primarily aim at automated warehouses. However, these vendors will often find SCE specialists on their path, as many specialists also offer extensive solutions for automated material handling control.

Competitors

We asked all WMS vendors who they consider as their main competitors. Table 6 shows the top 5 of vendors that were mentioned most often. On ranks 1 and 2, we find Manhattan Associates and RedPrairie who are considered to be worldwide market leaders. On rank 3 we find SAP, followed by local vendors Centric and Vanboxtel. Furthermore, Consafe Logistics, WICS, Davanti

Table 5 Packages analyzed for each market segment.

Segment	Vendor	Package
SCE-specialists Top segment	a-SIS	LM7
	Centric Logistics Solutions	Locus
	Consafe Logistics	Astro WMS
	Davanti Warehousing	MLS
	Infor	SCM WM
	Manhattan Associates	WMS
	RedPrairie	E2e
SCE-specialists Mid segment	BLOXX IT	Accellos One 3PL
	BLOXX IT	Accellos One Warehouse
	CAL Consult	CALwms
	De Clercq Solutions	Objective WMS
	Foursoft	4S elog
	Pelcos	KDL WOS
	Kewill	Kewill Warehousing
	Manhattan Associates	ILS
	Vanboxtel	Vanboxtel WMS
	VCD Automatisering	WISE
	WICS	WICS WMS
ERP-vendors	Exact Software	Easy Logistics
	Exact Software	Pick-IT
	IBS	Dynaman
	Lawson	M3
	mYuice	ProLogistics
	Qurius	Q-WMS
	SAP	SAP-EWM
	SAP	SAP-LES
Material-handling specialists	Consafe Logistics	Sattstore WMS
	Egemin	E'WMS

Table 6 Most competitive WMS-vendors in 2008 vs. 2005.

'08	'05	Main Competitors
1	(2)	Manhattan Associates
2	(3)	RedPrairie
3	(5)	SAP
4	(1)	Centric
5	(10)	Vanboxtel

Warehousing, Qurius, Infor, CAL Consult and IBS were named as competitors.

Table 6 also lists the ranking of 2005. Notice that the top 5 has hardly changed. Most compelling is the position of Vanboxtel on rank 5, coming from 10th position in 2005. Also rank 6 of Consafe Logistics in 2008 is notable. In 2005, the vendor had never been mentioned as a competitor. The biggest drop can be attributed to Kewill (formerly Interchain). While Kewill ranked fourth in 2005, this year the company was not mentioned a single time.

Table 7 Target group by product-assortment in 2008 vs. 2005.

'08	'05	Product Range
1	(1)	Food
2	(2)	Consumer goods (non-food)
3	(7)	High-tech / Electronics
4	(3)	Refrigerated and frozen goods
5	(4)	Healthcare / pharmaceuticals
6	(11)	Fashion / apparel / footwear
7	(5)	Industrial products
8	(9)	Automotive
9	(10)	Office supplies
10	(12)	Do-it-yourself equipment
11	(6)	Multi-media
12	(8)	Chemicals

Table 8 Target Group by type of company in 2008 vs. 2005.

'08	'05	Company Type
1	(1)	Logistic service provider
2	(3)	Wholesale / distributor
3	(4)	Retail
4	(2)	Production: Finished products
5	(5)	Production: Raw materials
6	(7)	Spare parts
7	(6)	Direct-to-consumer / e-commerce

Target Groups

Table 7 shows that food still is the most prominent target group by product range for WMS-vendors, followed by consumer goods. If we compare the numbers to those of 2005, then we see that the interests in high-tech (rank 3) and fashion (rank 6) have increased.

Logistic service providers still are the most important target group for WMS-vendors by company type, just like in 2005. The ranking in Table 8 hardly changed. The only notable difference is the decreased popularity of the finished-goods warehouses of manufacturers.

Conclusions

The WMS-market has developed significantly over the last year. The three most prominent developments at this moment are:

- Voice-picking makes its breakthrough
- WMS becomes chaos-tolerant
- Vendors accelerate implementation projects

These developments make processes more efficient and reliable, give management a better control over the operation and reduce the necessary investments in WMS. If you have been considering a new WMS for some time, then now the time has come to take the step. The return on investment in WMS has never been this good!

Jeroen van den Berg Consulting is a consulting firm specialized in warehouse management and information technology. For more information you can contact us directly or visit our website.

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