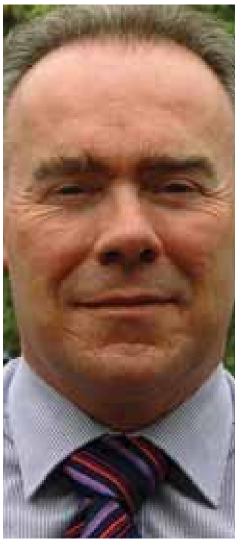
Warehouse KPIs: what's relevant?

Warehouse Key Performance Indicators should be SMART – Specific, measurable, achievable, relevant and time based, says Gwynne Richards of Apprise Consulting Ltd



Key Performance Indicators (KPI) should be SMART – Specific, measurable, achievable, relevant and time based. That is, the measures need to be clear and unambiguous, able to be measured over time e.g. year on year, or against other operations, are realistic in terms of target setting, are relevant to the company and its customers and finally, are measured over a particular time frame such as per hour, per day, per week etc.

KPIs also need to reflect what is important to your customers and secondly what is important to your own company.

Finally you don't want to be in a situation where it costs you more to collect and analyse the data than you are likely to save through efficiency better utilisation and improved productivity.

A recent survey on warehouse KPIs by The Warehousing Education and Research Council (WERC) in the USA produced some interesting results.

Distribution Centres and warehouses took a forward looking approach by focusing in on customers and processes rather than financial metrics, which tend to be lagging indicators of performance, i.e. those measures which are relevant to the customer and you as a company.

Half of the top ten metrics were customer focussed while the other half were capacity, productivity and employee focussed.

Two of the top 10 KPI relate to the utilisation of warehouse space during normal and peak operating periods.

There are two fundamental issues here. Firstly what is full utilisation? Frazelle (2002) suggests that the optimum level of warehouse utilisation, depending on the type of operation is a maximum of 86% for non-real time operations and 90% for real time, dynamic operations. Beyond these levels productivity levels tend to decrease and safety becomes an issue. A figure of 100% is not good practice although I have worked in many warehouses where this has been achieved but at a cost!

Having to wait for pallets to be removed from a location prior to putting away items is very unproductive, even more so if these incoming pallets remain on the loading bay or worse still in the racking aisles. This can also result in delayed orders, product damage and staff frustration.

For a 3PL the higher the utilisation of space the better in terms of revenue however a slowdown in the operation can cost significantly more in labour terms.

Secondly we are continually being told that warehouses should be temporary storage areas with products moving in and out of the warehouse as quickly as possible. The higher the stock turn the more efficient the warehouse.

The holy grail of warehouse operations is where products are cross-docked, spending as little time as possible in the warehouse. This requires a significant amount of coordination and accurate information flow.

It is accepted that off-shoring and long production runs result in a requirement for storage however KPIs need to be set for motion not for static situations. Increased stock turns lead to improved cash flow and happy customers. Money tied up in inventory cannot be invested elsewhere in the business and the longer stock remains in the warehouse the less it's worth and the more prone to damage it becomes. Interestingly stock turn does not feature in the top 10.

Having two measurements for order cycle time in the top 10 emphasises the importance of time to market and the short order lead times expected by today's customers. The metrics in positions 1, 2 and 10

Top ten most popular Distribution Centre KPIs with the best in class performance figures

Metric	Best in class	Median
On-time Shipments	≥ 99.8%	98.5%
Order picking accuracy	≥ 99.9%	99.5%
Average Warehouse Capacity Used	≥ 91.2%	≥ 84.9%
Dock-to-Stock Cycle Time, in Hours*	<2 hours	6 hours
Internal order cycle time	<3 hours	13 hours
Total order cycle time	<5.4 hours	33.5 hours
Peak warehouse capacity used	100%	95%
Lines picked and shipped per hour	81	29.9
Annual workforce turnover	<1%	5%
Order fill rate by line	99.8%	98%

*** this will depend on how the products are received – palletised or loose loaded.***

emphasize the most popular metric of OTIF (On time in full).

The top ten most popular Distribution Centre KPIs together with the best in class performance figures were as shown above.

The perfect order completion metric (on time, in full, damage free with the correct paperwork) had a best in class figure of 99% and a median of 95.3% which takes some doing!

For the first time last year the survey included a section on soft metrics which was in response to the fact that many companies are reducing the number of quantitative metrics in favour of more qualitative ones.

These include communication and collaboration approaches, trust, leadership approaches, innovation and team focus.

A University of Tennessee survey carried out recently found one outsourcing relationship where they measured flexibility, responsiveness and overall happiness with the relationship alongside three high level, critical success factors. This goes some way to proving that logistics remains a people business.

The SMART mneumonic will certainly be put to the test in future.

References

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