GET MORE FROM TIME SLOT MANAGEMENT BY COMPARING RETAILER SCHEDULING METHODS
Get more from time slot management by comparing retailer scheduling methods

The incoming goods department of a busy retail warehouse is a very complicated place. Every day the retailer anticipates receiving thousands of items, provided by hundreds of suppliers, delivered in multiple truckloads by many different carriers. Complexity levels rise when product variety is extremely high, when there are surges in seasonal or promotional items, and when the retailer experiences peak delivery times and condensed ‘short week’ schedules.

Time slot management enables retailers to coordinate the movement of incoming goods, with the aim of increasing product availability, making optimum use of incoming goods, and controlling downstream processes such as order picking and distribution. But there are three different methods of managing time slots. Which approach provides the greatest advantage?

Lack of transparency drives up process costs

Cost efficiency is increasingly important in retail logistics. A survey by the EHI Retail Institute, the Catholic University of Eichstätt-Ingolstadt, and Boston Consulting revealed 88% of retailers consider rising cost pressures and improving yield to be important or very important topics.

Every retailer can benefit from a time slot management system that goes beyond merely scheduling delivery to also providing detailed information. The organization needs to know not just when a truck will arrive but also what items it’s transporting and from which supplier.

Without this level of information, utilization of the retailer’s loading ramps can be planned only on the basis of assumptions. In the best case scenario, the unloading plan is then nothing more than an approximation of the actual on-ramp situation.

In turn, this lack of transparency forces the retailer to deploy more personnel, add infrastructure, and increase buffer quantities of stock. It’s the only way to deal with unpredictable situations – but this substantially drives up process costs. Relatively recent phenomena such as ever-decreasing ranges of stock as well as the rise of small-scale deliveries often serve to reinforce this effect.

Higher predictability drives down process costs

In contrast to the above scenario, retailers that are able to predict incoming supplies with a high level of certainty can reduce their investments in personnel, infrastructure, and stock.

Productivity in the incoming goods department can be increased by up to 20% when the supply to retailers is coordinated efficiently. In addition, downstream processes such as order picking and distribution can be better planned and controlled. Optimum coordination of incoming goods also has a positive effect on the retailer’s relationship with suppliers and carriers.

Optimal coordination of supply

- Improves personnel and resource planning
- Increases productivity by 20% in incoming goods department\(^2\)
- Saves process costs, overtime, personnel surpluses
- Improves on-shelf-availability of goods with lower buffer quantities
- Optimizes follow-up processes (e.g., order picking and distribution)
- Reduces on-site traffic congestion; improves traffic safety
- Lowers truck waiting time by 20% to 40%\(^3\)

Assignment of time slots for deliveries

The consensus in the retail industry is that it is essential to schedule the supply to retailers. However, the methods used for this task vary widely.

Some retailers have processes to merely de-escalate extreme situations. Others have highly efficient processes that rely on the digitization of transportation and logistics activities.

Comparison of various approaches

There are three main approaches to time slot management:

- Pre-defined fixed time slots
- Coordination of time slots by telephone and email
- Electronic time slot management system

\(^2\)Mercareon: Internal surveys. Ulm 2016.
\(^3\)Mercareon: Internal surveys. Ulm 2016.
The pros and cons:

- The method of assigning **pre-defined fixed time slots** incurs low upfront administrative expense for retailers and suppliers. It is easy to establish and then maintain over the long term an agreed time-per-day for each supplier, determined for each purchase order. This method is typically supported by computer systems that calculate a theoretical best delivery time for each order (based on inventories, forecasts, and other parameters).
In practice, however, there are significant challenges and disadvantages with pre-defined fixed time slots. For example, an inflexible scheduling system will force freight carriers to incur more empty trips. This results in higher costs for the carrier and the manufacturer, indirectly increasing costs for the retailer.

Through static assignment, it is very difficult to map changing delivery quantities during seasonal business. Also, there is no solution to early and late deliveries – in practice it’s inevitable that many trucks miss their fixed time slot. This method therefore works well only for deliveries on a fixed timetable with a constant number of vehicles (e.g., for regular groupage freight deliveries).

- **Dynamic coordination of time slots by telephone and email** allows carriers to achieve better route planning (reducing empty kilometers) and influence the delivery deadline (reducing late deliveries).

This method substantially increases predictability for the retailer and allows all parties to query and agree delivery information.

The downside of course is considerable expense for the retailer. Skilled and experienced personnel must be available 24/7 to issue and confirm information and coordinate activities by telephone and email.

- **Retailers, suppliers, and carriers** can all achieve an efficient planning and scheduling process with the right **electronic time slot management system**. Flexible selection of available time slots – depending on the rules of each warehouse site – improves carrier trip planning and therefore also improves punctuality. This method achieves higher punctuality compared with the other methods.

As well as keeping trucks on time, this method allows the all-important additional information (e.g., combined purchase orders from multiple suppliers) to be efficiently recorded and easily accessed in real time. All parties enjoy the greatest possible transparency, and the retailer can plan for optimal delivery, unloading, and collection.

The best choice of electronic system will do more than simply work with the retailer’s management system. It will also have the required depth of integration. For example, the right system will maintain any previously set time-based rules such as deadlines. This means the retailer can reconcile all requirements for the optimal flow of incoming goods, while also meeting the needs of suppliers and carriers. Another key advantage is adaptability – the right electronic time slot management system will adapt to changes in booking conditions, new restrictions, and differing processes for incoming goods.

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## Advantages and disadvantages in detail

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<tr>
<td><strong>Cost of scheduling</strong></td>
<td>★★★☆ Low cost due to long-term coordination between the retailer and each supplier.</td>
<td>★☆ High personnel expense due to individual communication between the retailer, suppliers, and carriers; additional documentation required (e.g., in Excel).</td>
<td>★★★☆ Low cost due to automatic coordination process; booking conditions can be automatically saved in the system. Additional advantage of using an open system that informs and coordinates all tasks (avoiding siloed activities).</td>
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<tr>
<td><strong>Carrier flexibility</strong></td>
<td>-- No flexibility; time slots are often missed in practice.</td>
<td>★★★ Average flexibility as the carrier sees only a limited selection of time slots offered in a rigid Q&amp;A mode.</td>
<td>★★★★ High flexibility as the carrier sees and selects from all available time slots possible for each delivery.</td>
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<td><strong>Punctuality</strong></td>
<td>★☆ Low</td>
<td>★★★ Average</td>
<td>★★★☆ High</td>
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<td><strong>Tracking capability</strong></td>
<td>★☆ Often no target/performance comparison; manual reporting of unpunctuality; no confirmation of each delivery; minimal evaluation possibilities.</td>
<td>★☆ Often no target/performance comparison; manual reporting of unpunctuality; high recording effort required to achieve adequate evaluation; poor data quality due to manual entry.</td>
<td>★★★☆ Real-time information; integration of systems for shipment tracking and KPI determination; high carrier transparency.</td>
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<td><strong>Predictability</strong></td>
<td>★☆ Poor predictability due to high deviation from target/performance; planning security lost through lack of punctuality; no detailed information.</td>
<td>★☆ Moderate predictability; detailed information must be queried manually; high susceptibility to error; carrier can only supply individual details later (such as the driver’s phone number and vehicle license plates).</td>
<td>★★★☆ Very high predictability because all delivery information is centrally stored and available in real time; the carrier can directly add individual details (such as the driver’s phone number and vehicle license plates).</td>
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<td><strong>Retailer efficiency gain</strong></td>
<td>★☆ Low efficiency gain; retailer must add buffer resources to cover for unpredictable and unconfirmed delivery, unloading, and collection.</td>
<td>★☆ Moderate efficiency gain due to better planning of the unloading process; but efficiency loss due to high coordination effort for planning and document provision.</td>
<td>★★★☆ Very high efficiency gain due to retention of important logistics information; this results in better planning of delivery, unloading and collection; provision of standardized documentation.</td>
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Fig. 2: Comparison of the three time slot management approaches
Supply Chain Insight
Time Slot Management – Supply to Retailers

Which relationships work best?

Retailers aiming to improve time slot management should ensure a direct contractual relationship with their suppliers. They should also build direct relationships with their carriers.

To more efficiently plan the supply to retail, ask this important question right at the start: Who needs to communicate?

In the past, the carrier alone would hold almost all of the important logistics information.

Information exclusive to the carrier:

✔️ Which purchase orders are being transported on which trucks
✔️ Which drivers are being used; their telephone numbers
✔️ Which trucks are on the road; their license plate numbers
✔️ When is each shipment due to arrive
✔️ Whether any delays have occurred / are likely to occur
✔️ Which is the optimal time slot for trip planning

In the past, if the retailer wanted to access any of this information, a request was made to the supplier, and the supplier would then ask the carrier, a response was given, and finally the supplier would tell the retailer. In this role, the supplier was acting only as an information mediator – this was a non-value-adding activity that wasted supplier and carrier resources, adding cost in the medium and long term. This was also a time waster; information often didn’t reach the retailer punctually or completely.

Establishing direct contact between retailers and carriers

Today it is technically possible – and it makes far more sense – for the supplier to initiate contact between the retailer and the carrier, and then retreat from subsequent communication, leaving the retailer and carrier to exchange the necessary information directly.
Efficiency is boosted when this exchange takes place not by telephone and email but rather via an automated electronic time slot management system. With a neutral and industry-wide platform, all parties can have centralized access to the required information.

For example, with the Mercareon system, the retailer and the carrier require only an original purchase order number – this single element of identification allows time slots to be booked, shipping routes and schedules arranged, drivers and trucks contacted and monitored, alerts issued in real time, and more.

**Keeping the supplier involved for monitoring**

Cutting the supplier out of the shipper-carrier conversation should not limit the supplier’s ability to monitor all transportation activities. With the right electronic time slot management system, the supplier can continue to observe and evaluate carriers, making sure they meet essential KPIs such as punctuality, turnaround times, capacity provision on specific lanes, and more.

**Simplification benefits everyone**

Using a neutral and industry-wide electronic time slot management system should simplify operations for all parties: retailers, suppliers, and carriers.

For retailers, this is becoming particularly important as they try to reduce inventories and call up goods directly from manufacturers on an as-needed, just-in-time basis. This lean approach generates more ramp contacts, more traffic, and possible losses of synergy as smaller quantities must be delivered at higher frequencies. Any solution that adds simplification is therefore welcome.

To enable efficient processes, the time slot management system must support optimized trip planning for the carrier. And this is likely to have a very positive impact on the retailer’s overall costs.

Although the retailer may not see shipment costs separately itemized on their supplier bill, these costs will be included in (and can be a significant share of) the overall cost. So if there is a way to lower the carrier’s transport costs, ultimately this saving will be passed on to the retailer in the form of an overall cost reduction. There is clear evidence that the right electronic time slot management system achieves carrier savings potential of up to 8% of the transport costs.

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7 Transporeon Group: Internal surveys regarding transport commissioning. Ulm 2016.
Suppliers and carriers prefer dynamic delivery control

Fig. 3: Inefficient delivery processes add cost for suppliers and carriers, ultimately affecting the price paid by the retailer

Cost savings are maximized

Which time slot management approach is most financially advantageous for retailers, suppliers, and carriers? Clearly, there is only one approach that maximizes cost savings for all parties (see figure 4).
## Pre-defined fixed time slots

**Cost drivers**
- Less predictability; no detailed information; more trucks arrive late; no optimum utilization of incoming goods; personnel buffer required; inefficient route planning; higher freight costs.

**Cost savers**
- Lower personnel costs to operate and administer this method; some carrier cost savings can be achieved compared with a basic ‘first come, first served’ system.

**Overall costs**
- High

## Coordination of time slots by telephone & email

**Cost drivers**
- Higher coordination expense; high process costs; high personnel costs; frequently poor and extensive documentation.

**Cost savers**
- Better predictability; possible carrier cost savings due to better route planning and reduced waiting times.

**Overall costs**
- Average

## Electronic time slot management system

**Cost drivers**
- Using a proven transport management system means no investment in development; also avoids costs of inadequate time slot management (e.g., long wait times & missed time slots).

**Cost savers**
- High transparency and evaluability; optimum planning of incoming goods and collection; efficient coordination processes; optimum route planning; lower freight costs.

**Overall costs**
- Low to average

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**Fig. 4: Cost saving comparison**

It’s clear that dynamic electronic time slot management delivers the highest cost savings. This approach provides all the advantages of delivery scheduling while also offering carriers the route planning flexibility they need. Tediumous manual delivery scheduling is replaced by efficient data entry on an electronic platform. A companywide, standardized management system costs less and saves more than self-developed and isolated solutions. And it seems all parties appreciate the benefits of a neutral electronic time slot management system – already some three out of four carriers prefer electronic time slot management systems to coordination via telephone and email... and this tendency is rising.

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9 DVZ No. 89/2012, p. 6 „Mehrheit bucht am liebsten über Zeitfenstersysteme“ (Majority Prefers Use of Time Slot Systems);
Mercareon: Customer survey, Ulm 2012.
Mercareon: Customer survey, Ulm 2015.
What does the future look like?

Retailers need to take a long, hard look at the flow and transparency of incoming goods. By more accurately tracking, evaluating and budgeting, they can build understanding of Supply Chain 4.0 (a deliberate reference to the more widely known trend of Industry 4.0, which asserts that automation and data exchange are the next developmental stage after Industry 1.0 mechanization, Industry 2.0 mass production, and Industry 3.0 computerization).

It remains to be seen how your organization will benefit from Supply Chain 4.0. In the meantime, continue to monitor any competitors that are already exploiting this unstoppable trend towards full digitalization of the retail sector.