

Cutting Waste Out of Your Refrigerated Fleet Operations



Sensor-based, data-driven fleet management can help you uncover hidden waste, saving you money on fuel, maintenance and labour costs.



Waste is often the invisible drain on your

business. Be it fuel, maintenance or labour there are multiple ways waste can lower the productivity of even the best run business.

Reducing waste isn't always the primary benefit that businesses look for when shifting to a sensor-enabled, data driven fleet management system but it can be one of the biggest benefits businesses see if they use the tools at their disposal to identify wasteful practices that had previously been hidden by a lack of data.

With fuel making up to 30% and labour up to 50% of expenses, how you focus on reducing these costs while improving efficiency can pay big dividends. But when you have limited data available, either collected manually or via rudimentary on-board sensors, you can only do so much to reduce waste. Even after shifting to a modern fleet management system that provides both detailed, real-time data and the tools to extract real intelligence from it, some businesses still maintain old processes because everyone involved believes them to be efficient.

The chances are, however, that such legacy processes have a significant amount of waste built in because their focus is on meeting core operational goals without losing a load, and some waste is seen as an acceptable cost to ensuring the fleet is dispatched on time and the consignment arrives safe and compliant.

But if you've shifted to a modern fleet management solution then you now have access to rich data which can help you refine your processes to eliminate this lingering waste and also make your operations more efficient overall.

Are my assets being used?

The first thing customers want to know once they've got access to better data is: "Am I using my equipment?"

Addressing poor asset utilisation is an obvious place to start. Some of the implications of poorly utilised equipment are obvious; when you've got capital tied up in expensive equipment and it isn't generating revenue that's costing you money, especially if it has associated labour costs that you incur regardless of whether the assets is being used or not.

There are other, less obvious costs. For example, a business may be tempted to keep aging equipment on the books longer, and work it harder, to ensure it gets the best ROI on the asset. But in doing so they can end up pushing it into an inefficient phase of its life where it incurs extra maintenance costs and burns more fuel.

Features like utilisation reports are therefore a first stop to answer some crucial questions. Have your assets moved? Has the reefer unit been turned on? How long has the unit spent stationary with the reefer on? What is the ratio of reefer on time to total time? Getting reports on these data points allows you to dive into where inefficiencies may lie and identify areas for change.

An example of this, which may be fairly typical of many fleet businesses, is the impact the perceived efficiency of asset utilisation has on operations. Distribution centres and transport managers may be asking for more assets from procurement, arguing that they are at 100% utilisation while procurement says they are not. Operations counters that the non-utilized equipment was in maintenance. Such ongoing arguments can be settled by analysing the data you have to get a clear, unbiased picture of how your operations and maintenance processes actually affect asset utilisation.

We had a real-world example of this with one customer who was convinced their asset utilisation was at 100%. But utilisation reports said it was closer to 85%. Where was the missing time? The businesses processes weren't making use of the rich data available to be sure exactly where the equipment was and when it was being used. The various managers across the business, from fleet management to maintenance, all used processes that built in margin of errors so that they would be able to meet their goals with the result that everyone believed they were operating at peak efficiency.

But the data sourced from sensors on engines, doors, the reefer unit and GPS geofencing often gives a much more complete picture that highlights where utilisation isn't optimal. By drilling down managers could see what was actually being done with equipment when it was not being utilised and gain a clear insight into whether equipment was in the workshop or just sitting in the yard. This type of utilisation analysis allows you to better deploy assets. In this instance the customer was able to conclude that orders from restaurants and food wholesalers were changing throughout the year due to seasonal factors which meant that at some times of the year some assets weren't being optimally used. Data analysis let the customer discover it was more efficient to deploy one large trailer to a particular area rather than two small trailers. The spare small trailers were then moved to a different State as a result.

Utilisation analysis lets you know if your assets are being used but deep utilisation analysis lets you identify actual spare capacity and also where that capacity is better deployed to. The costs of doing the analysis is typically significantly less than the savings you'll make from that analysis.





Put legacy processes under a microscope.

Looking at how your assets are being used can reveal unexpected savings in waste, time and money both on the road and in the yard.

Looking at your in-house processes will turn up those instances where legacy methods of doing business are hiding waste instead of saving it. An example of this is data collection itself. Many businesses have employees walking the yard manually collecting temperature readings. Simply replacing this with the automatic temperature collection a fleet management system provides might not seem like a large cost saving. But human error in manual data collection has hidden costs from lost loads and the resulting damage to the company's reputation.

The complexity of transporting food long distances, with narrow temperature tolerances inevitably results in significant waste from even comparatively minor exception events. With a business facing a \$50-\$100K loss from a single trailer of spoiled produce, even incremental improvements in processes can have large payoffs. Prior to switching to our fleet management solution one customer lost a load when the trailer's refrigeration unit had run out of fuel, and this was not discovered until the driver reached destination. People make mistakes in manual collection of data and those mistakes can result in costly exceptions. This results in inefficiencies being built into the process to avoid such huge losses again. If we can eliminate the risk of losing a load, we also eliminate the inefficiencies built in. Replacing manual, driver-collected data for such things as reefer temperature. door status or fuel level, with realtime monitoring and pairing that with active exception alerting can highlight problems and give the business the time to rectify them before a load is lost.

Other savings come about from the increase in efficiency of the whole process. Businesses such as Walmart have analysed their supply chain and discovered that produce can take weeks to move from point of harvest or slaughter to being on-shelf which shortens shelf life to a matter of days. Incremental improvements in processes that cumulatively slash even just one day off that journey can extend shelf life and save a business hundreds of thousands if not millions of dollars.

If you don't need it, don't run it.

Another example of legacy systems based on limited information comes from a customer running major food distribution centres. The customer started the working day by having the reefers in the trailers turned on to be ready for loading. Because their focus was on getting the first load of the day out promptly they were turning the reefers on between 30 and 90 minutes before loading occurred. Partly this was because they were also chilling the entire trailer which took a long time to bring down to the target temperature.

In looking at their process we found that in fact only a third of the trailer was required to be for frozen goods while the rest only needed to be at the same chilled temperature as the loading dock. By only pre-chilling a smaller, compartmentalised portion of the trailer, pre-chill times were brought down to just 15 minutes, since the condenser in the trailer is designed to efficiently chill that smaller space. The rest of the trailer then naturally took on the temperature of the chilled dock during loading.

The result was a massive saving in fuel costs with no negative impact on

temperature in both the frozen and chilled zones. The customer had been running this system simply because they didn't have the data to know any different.

Another customer had routinely set the temperature on their reefers to -20F while the temperature of their warehouse was 0F. This each meant the reefer was continually trying to drive a warmer load down to -20F, wasting fuel in the process. The client was breaking the cardinal rule of cold chain transportation, which is maintain temperature not change it. In this case the customer could solve their problem simply by bringing the pre-chill temperature of the reefer up to an appropriate level.

In both these cases sensors in the reefers for temperature and fuel use were able to give them the data they needed to run the pre-chill process efficiently. This a key takeaway from using a fleet management system; the data you collect can be used in ways you hadn't initially thought of to give you a better insight into how your business actually runs, versus how you imagine it runs. That's often where the waste lurks.

Finding the Critical Statuses.

This concept, that there are hidden wasteful practices occurring which you can uncover with data, can be thought of as a matter of identifying critical statuses. At any moment your equipment is in some set state: it is either being used or not used. If it is not being used it is either under maintenance or in the yard. If it is in use it will be in one of a number of statuses, such as pre-chill, loading or in transit.

Some of these statuses will be 'critical' in that you want them to remain in that status for the shortest possible time because the longer they stay in that status the more cost you incur (e.g. fuel, labour) or the greater the risk to the integrity of the load (e.g. having the reefer door open during loading and unloading). By identifying the critical statuses in your equipment's day, you find those areas where small amounts of improvement can result in major savings. For example, one customer focused on their idling times, taking their average stop times from 15 minutes down to 12 minutes which resulted in a saving of \$120,000 on fuel alone per year.

A critical status for reefer units is the amount of time the door is open during stops. Quicker offloading leads to less time with the door open which minimises both the risk of damage to product and fuel usage from having the reefer bring the temperature back down. Making that off-loading process the most efficient it can be then comes down to the way the trailer is loaded, the placement of condensers and driver training.

Across the course of the working day saving incremental minutes during these critical statuses will result in both fuel and labour cost savings, time savings and reduced risk of damage to goods.

Major fuel cost savings can be found by simply taking fuel out of the mix at appropriate critical statuses. For food distributors this can be as simple as electrifying distribution centres so that reefer units aren't using diesel when in the depot. One customer has already found that electrifying distribution centres has saved them hundreds of thousands of dollars in fuel costs – even allowing for the cost of electricity.

Predictive maintenance

Preventative maintenance may help the business have surety about which assets will be available for use, but it also factors in more downtime than is probably necessary. Using the data coming from a wide range of sensors installed on both tractors and trailers enables you to implement more efficient pre-emptive and predictive maintenance that will let you take assets off the road before issues occur and have them off road for less time due to fixing minor issues before they become major headaches.

And example of this was a customer that studied its roadside reefer shutdown events and discovered that 60% of failures were indicated by a pattern of manufacturer alerts. If they had taken action on those alerts when they occurred they could have more than halved their number unexpected failures.

Many fleet management system users are unaware of the potential power of the data they are collecting to signal problems before they begin to manifest. Clever use of alerts and reports can help operations and maintenance managers flag minor issues which fit a pattern that typically leads to larger problems. As fleet management solutions continue to grow in sophistication and the number of elements within the asset that are monitored expands, even better data will become available that will help you save money.

For example pilot programs we've run on monitoring ABS brakes have revealed an alarming number of owner-drivers who do not activate the ABS brakes on their vehicles but instead let the ABS brakes on the trailer carry the burden. This is just one example of areas in which advanced monitoring and alerting can reveal and help you rectify poor driver behaviour which is putting you at risk of failing an inspection, causing an accident or costing you money in excessive maintenance.

The advantages of both collecting deep data and turning it into active intelligence can seem theoretical but the examples we've outlined here are just some of the ways sensorbased, data-driven fleet management can help you cut waste across your operation and save you substantial sums of money in the process.





Coretex is the essential platform to obtain actionable insight into fleet operations each step of the way.

By collecting data from disparate sources, our single integrated Coretex platform can track and manage reefers remotely, location and speed, replay trips, define and manage geofences, control assets, monitor driver behavior, maintain service records and allocate jobs.

Having proven international experience in providing fleet management technology, and with over 1,200 customers, Coretex is proud to be an active participant in moving the refrigerated supply chain industry to the next level.

ABOUT CORETEX

Coretex delivers compliance and fleet management solutions to more than 60,000 connected vehicles in commercial freight, construction, cold chain, waste and recycling industries. Coretex's cloud-based visualization platform helps customers worldwide turn rich data into automated business intelligence supporting safer, greener and more productive business outcomes.

