Sensire

Quality & Efficiency in Cold Chain Logistics: Can You Have Both?

How current solutions answer the quality-efficiency challenge, and is there a solution that would be able to deliver both without costing the proverbial arm and a leg?

By Dirk Wilke | Sales Director Europe

Let's face it – it's not always easy to make sure your supply chain functions in the most efficient way possible. This can be due to a number of reasons. Sometimes you get affected by freak natural phenomenon. Other times there can be a sudden rise in demand for transportation and you are left with insufficient shipping capacity. These and other similar problems you can't really stop, because they have to do with big global patterns, which you just have to adapt to.

But sometimes you could prevent disruptions to your supply chain if you only knew what was happening. In cold chain conditions these kinds of disruptions are often temperature excursion or other sudden deviations from your standard operating procedures (SOPs).

Now, being able to prevent these would almost without exception require adding extra monitoring processes to your already pretty full list of SOPs. And it's not that simple to decide what is the right amount of visibility to implement that would allow you to spot the disruptions but wouldn't put too much time or trouble into the monitoring activities themselves.

It's the never-ending struggle to maintain efficiency while delivering best quality products in a changing logistics environment. So, in this piece we'll be talking about what are the capabilities of current solutions to answer the quality-efficiency challenge, and is there a solution that would be able to deliver both without costing the proverbial arm and a leg?

What Does Global Compliance Require?

Now, we know that compliance is typically considered a part, though hopefully not the whole, of quality assurance in cold chain logistics. And challenges with achieving and proving compliance can play a significant part in how efficiently it is possible to deliver cold chain products on time and in full to the consignee.

This is because cold chain logistics is often regulated quite closely by a number of both national and international bodies. As such, being able to prove compliance according to a particular regulation is then the very starting point of even being able to do business in such regulated industries. But the very act of proving and maintaining compliance may sometimes in itself cause delays to shipping.

Of course, if the various regulatory bodies had a completely identical approach to what makes a compliant quality and safety process, it would make proving compliance a lot easier. However,

this is not always true, and doing business in an international setting can mean you need to be able to deliver compliance data that satisfies a number of different requirements. Which usually means finding the typical process values, i.e. the ones satisfy most requirements your logistics operation has to deal with.

Typically, you'll still need to adapt somewhat depending on where in the world your shipment happens to be traveling, but on the whole you will have such processes in place that you know you'll generally be compliant throughout your logistics chain, no matter where it may take you.

But having compliant processes in place is not enough in itself. You also need to prove that those processes do what they are designed to do. And here we need to talk about increasing visibility in the logistics chain and how that can help improve quality and maintain compliance.

Two Ways to Do Visibility

Of course, for purely compliance purposes it is still acceptable to just have a means of recording cold chain processes and conditions so you are able to show what the eventual results were. And this is very probably something you are more than familiar with, either by archiving temperature recorder prints, or by downloading temperature logger data to your computer. In some cases, you might even need to download the data and then also have to print it out.

And while this kind of manual work can be a bit taxing, the real challenge comes from having to deal with any deviations you then find in those records. This is what is meant by retroactive visibility. Especially in pharmaceutical logistics this is a real problem, because a deviation investigation is typically both long-lasting and costs a hefty sum of money.

For other kinds of perishable logistics, it is more often the case that any deviation results in ditching the affected products, which also creates costs in having to replace the shipment and makes for unnecessary waste.

With real-time visibility – the kind of visibility that tells you what is happening right now - it is much easier to start improving both quality and compliance. This is because you can design SOPs with in-built processes for immediate corrective actions. These are enabled by real-time information and alerts on changes.

In some cases,
you might even need to
download the data
and then also
have to print it out

And better visibility also helps take advantage of more holistic deviation data in order to drill down to root causes and design preventive actions right into the SOPs. This directly affects your ability to operate compliantly as well as having a strong impact on quality.

Going Above and Beyond Compliance with Quality

But if you'd be just as compliant with the recording kind of monitoring (as long as you make sure that any affected products do not reach the consumer) where is the problem? Even if this way of doing things also incurs costs in wastage, it is a compliant way of handling your responsibilities.

Well, the thing is that what is and isn't safe on delivery isn't an end-all solution to your product quality needs. Even when you remain compliant and deliver safe products, if they have experienced non-critical degradation, they may have reduced shelf life or purely aesthetic or taste-related defects. And this is a problem, because very few people are willing to buy a blotchy tomato, even if it is otherwise completely fine.

But with real-time monitoring, you can stop both the critical and non-critical deviations and excursions by acting on immediate information from your cold chain and thereby significantly improving your capability for ensuring quality. Did someone leave the truck door open? You'll get an alarm. Is the HVAC in your storage malfunctioning? You'll get an alarm. Is the defrosting cycle in your fridge raising temperatures too much? Again, you'll get an alarm.

And even more than this you'll get to see if one or all of these are a regular occurrence, and then you can adjust SOPs to prevent the very

possibility of that deviation from turning up again. With time-stamped data on condition fluctuations and alarms, which can be accessed throughout the supply chain, looking for trends and root causes is a lot easier than the old way of trying to work out where a USB logger has been at the time something went wrong.

None of this is absolutely new information, of course - it's pretty clear that better visibility can help with both quality and compliance matters in the cold chain. The real question is, how efficiently can this be done?

Using Automation to Improve Process Development

Now, we've actually already mentioned the two main things that make real-time visibility into cold chain conditions a lot more efficient that manual measuring or temperature logging with retroactive data inspections. These are automation, which affects measuring, alarms and data accessibility; and improvements to process development, which helps refine your SOP's in a way that helps prevent quality defects and compliance investigation delays.

> When we move on to improved process development capabilities, the focus will move from corrective to preventive actions

Automation of course lessens the overall need for manual work in measuring activities, such as having to write data down on paper or enter it into spreadsheets for tallying. It has to be mentioned, though, that with automating the alarms process, the staff may initially see increased need for labor. This is because they

need to perform an increasing number of corrective actions as a result of having to act on that real-time information. corrective actions as a result of having to act on that real-time information.

So, to come back to the question we started off with, real-time visibility may at this stage seem a kind of zero-sum game. When you improve quality with better monitoring, you may need to work a bit more, which will in turn impair efficiency.

However, this is usually a passing phase, because when we move on to improved process development capabilities, the focus will move from corrective to preventive actions.

So where we used to have to throw away perishables that were affected by deviations, now we'll rather do a bit of thinking and come up with an action that will prevent the deviation in the first place. And while these will require some work also, they will end up saving time, labor and money by decreasing waste and the need to inspect deviations.

So, it looks like adding visibility into cold chain logistics doesn't actually impair efficiency. But at what cost?

Then Again, Can You Afford Not To?

Now, there's no use denying that, when compared purchase to purchase, real-time visibility solutions will always cost more than your standard USB logger or doing everything by hand yourself.

But that is only factoring in the one-off purchase price.

For real-time solutions, you really also need to factor in the predicted results you get by using the solution as compared to using retroactive

systems or manual work. Only then, and depending on what the numbers say, should you make a decision on what kinds of needs should the system you're looking to purchase be addressing.

This is because when evaluating visibility solutions and their prices, it's very important to look at the benefits they offer as a part of the purchasing price. That is, when you look at the system as an investment towards being able to deliver better quality and compliance more efficiently, the ROI is actually very decent. It doesn't take that many prevented critical deviations before you'll be making a profit.

This is not to say that a real-time solution would always win in this kind of evaluation – sometimes you'll be just fine with a retroactive system. But without doing the math with the potential benefit and process development in mind, you won't have the information to make the best decision for your cold chain.

And then that cheaper system will end up costing you more than what you would have saved by getting the real-time system in the first place.

Dirk Wilke

has worked in several industries before moving to the field of Supply Chain & Logistics 16 years ago. Before joining Sensire as Sales Director Europe, Dirk worked in a number of Supply Chain & Logistics roles across Europe for multiple companies.

Sensire

Sensire Ltd., founded in 2007, is committed to be a leading innovator in cold chain IoT technology in order to deliver best-in-class products and services to its customers. We offer comprehensive wireless and automatic environmental monitoring solutions for climate-controlled applications in logistics, food production and healthcare.

Sensire's easy-to-use IoT sensor systems help customers save considerable time, money and product waste by automating many manual processes and delivering alarms on excursions. Our solutions are being used every day in end-to-end cold chain operations from food to pharmaceutical logistics as well as in many climate-sensitive healthcare premises.

www.sensire.com

© 2019