



Conclusion Prof. Dr. Walther Ploos van Amstel:

**25% MORE PROFIT
BY TACKLING DOA'S**

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COST OF DOA'S OFTEN UNDERRATED

They are high in the top 10 annoyances of high-tech manufacturers: Dead On Arrivals (DOA's). Customers who receive defective components, are a source of difficult discussions about system availability, service level agreements and claims. Remarkably are DOA's still not often high on the priority list of manufacturers. Even though addressing these problems can lead to a quarter more profit.





It can always happen: an entire department that is at a standstill because of a fault in one of the machines or systems. The cause is usually found quickly. One of the components is broken and must be replaced. The manufacturer of the machine, a logistics service provider, or one of the suppliers takes quickly a replacement component from the parts store, puts it in a box and sends it with the first best courier to the company that is at a standstill. But when the service engineer unpacks and installs the component, he responds bewildered; the machine still does not work. Cause: the sent component is also broken!

DEFINITION OF DOA

The term Dead on arrival (DOA) refers to a component that is already broken at the delivery. It can happen to every high-tech manufacturer and is often the source of nasty, fierce discussions with customers. Manufacturers must also make additional charges to still solve the problem and in some cases they even receive a blunt claim from their customer.

For FPC Beyond Packaging this was reason enough to organize a seminar concerning DOA. This design and consulting firm specializing in industrial packaging and packaging processes, based in Reusel, invited in the summer of 2011, twelve leading high-tech manufacturers for an extensive discussion. I myself had the privilege of chairing this seminar.

Companies that have participated in this seminar: Assembléon, OCE, Dutch Ministry of Defense, ASML, Groeneveld Transporttechniek, Enrichment Technologies, Fokker Aerostructures, DAF, Philips Healthcare, Medtronic en FEI Electron Optics. One conclusion could be reached quickly: DOA's are really high in the top 10 annoyances of these companies.

MEASURING DOA'S

Although everyone understands the meaning DOA's, in practice, there are small differences in the definition. While one company already talks about a DOA by the arrival of a broken component at a single client such as an assembly department or service depot, a different company borrows this term as the end user notices anything.

Also the way DOA's are measured differs from company to company. There are companies where DOA's are registered by field engineers, while others look at them during the inbound or the reversed logistics channels. This involves looking at the number of broken components that come back without having been used or installed. In general view the registration could be different or better, but it was unanimously agreed that, in all cases it concerns significant numbers and significant amounts.

Which definition of performance indicator is used, the figures of the various high-tech manufacturers are eventually fairly consistent. Some companies talk about 0.2 percent others indicate that the amount of damages due to DOA can rise to 0.5 percent of the annual operating revenues. This justifies the conclusion that by preventing DOA in the supply chain these companies may make average about 0.2 to 0.5 percent extra.

BUT THAT'S NOT ALL ...

The present companies indicate that the costs associated with repairing DOA can amount ten times of the cost of the DOA itself. Think of special transport, field engineers who need to remain at the appropriate place longer, downtime of this machine and additional logistical and administrative actions that must be performed. If we look at costs that way, we do not talk about it to saving, 0.2 to 0.5%, but saving 2 to 5%.

WRONG PACKAGING

In practice, in the case of a DOA stakeholders point quickly to the quality of the packing. It is claimed, "With better packaging this misery would not have happened". A phenomenon which is absolutely recognized by FPC. However, in many cases this is not a correct conclusion. This seminar has shown that in many cases precisely the process of the packaging around has led to the ominous DOA.

The participants of the seminar were able to tell stories about DOA's that would well do on many birthday party. Take the example of a trolley of drawers, a cart with a large number of trays above each other, including content was packed in a wooden box. During the design of the packaging manufacturers did not take into account the fact that the trolley could fall anywhere in the logistics process or could be placed on its side. That was what happened, with a huge loss as a result.

Other examples are metal parts that despite the packaging rust away in the humid climate of tropical countries or meter long components in wooden boxes that truck drivers do not know how to maneuver through a narrow door without collisions.

In all these examples, at the closer inspection it is obvious that there is not put enough thought in the process of drafting the package concerning the hardships the products must endure, or that the people who have to deal with the packages are not correct or not sufficiently instructed.



INADEQUATE VISIBILITY

A characteristic of a poorly organized packing process is that the choice of packaging is often made by an operator (packer) who has no visibility on the entire supply chain. Such local staff often does not realize the circumstances in which a component arrives and therefore does not take in the consequences of his (packaging) choices for actors down the supply chain.

Another important aspect an operator has to keep insufficiently in mind, is the massive amount of handling of one package. For example, the figures of one of the hightec manufacturers present at the seminar show that 40 percent of the DOA's is only caused by the handling of components. Operators and / or logistical parties often have no idea of what all shipments going through and against what products should be protected.

It also happens that the right packaging is present but it is insufficiently known how to handle it. Should the plastic bag be in the box or just around the product and must the desiccant be in or by the box? Small details result often in large losses.

There are also issues such as labeling and coding that, if properly applied, support sending goods. But should that code be at the front or at the back and are the bar codes of the last time removed? Another phenomenon which became known was that packaging regulations often do not end up in the right place causing even those preparations miss their target.





PACKAGING PER PIECE OR IN BULK

A supply chain starts from a supplier, but he usually does not know enough about the following links in the chain the components have to run through. For the shipping department of a manufacturer it actually makes no difference whether the components go to an assembly line or a parts warehouse. Without additional instructions the components in both cases are simultaneously packed in a sturdy carton with ten or twenty pieces, logical, right?

However, parts warehouses are characterized by components delivered by the piece. This means that the operators often have to search a package to send only one piece. That means improvisation, with all its consequences.

INSUFFICIENT KNOWLEDGE

Even if operators have sufficient insight into the supply chain, it is still not an easy task to choose a proper packaging. Especially in spare part warehouses the variety in products is often very large. There may be rubber O-rings with a diameter of a few millimeters in stock, but also complete engines. Try to find a proper package for all components, which also vary considerably in terms of shape, weight and fragility. In many situations, the packer is simply forced to improvise.



In addition, it is questionable whether anyone in the chain who gets a component in hands, is aware of the current packaging requirements. It happens that boxes with components packed under clean room conditions are unexpected to be opened on their way. Experts know that once that is happened a packaging does not enter a cleanroom.

A DOA.

It also happens that circuit boards are tidy packaged in an ESD bag, as it should be, but somewhere in the chain are unpacked in a place where no anti-static mat or no wristbands are used. Sometimes the drivers or operators do not know symbols and labels on a package or they can not read them because they are written in a foreign language, and as a result, they do not consider the transport and storage conditions. How often does it happen that products which can not be stacked are still be put on top of each other?

The following DOA is born.

NO ONE IS RESPONSIBLE

The lack of knowledge about packaging and packaging requirements can partly be explained by the current outsourcing trend. Transportation, warehousing, assembly: more and more processes are outsourced to logistic service providers who have less product knowledge than the original equipment manufacturer (OEM) at their disposal. For both the OEM and the logistics service packaging is a non-core activity causing this issue generally to remain underexposed.

The question is also whether all those service providers have a view of the entire supply chain and the circumstances in which machines or components to jump into. It happens all too often that precious and fragile components are given to standard package carriers who never are observant.

The fact that operators often have to make a choice for a package, is usually a result of the fact that no single manager or section is appointed responsible for packaging. Someone who has a problem with his computer, contacts the IT department. But where do you go when you have a question about packaging?

Most companies - let alone supply chains - miss a central point. There is no one who has an overview of the used packaging and its instructions in different locations and in different departments. The result is that people start improvising, leading to sub-optimization. People have the tendency, after all, in order to choose a package that is suitable for their own process. However, this does not have to be a packaging suitable for the whole chain.

What also does not help is that companies hardly learn from DOA. Many companies allow their service engineers to complete extensive forms, but the complaint descriptions are often sketchy and end in many cases on the big stack. How could it be otherwise, because who is responsible for it?



SERVICE LEVEL AGREEMENTS

DOA's often cause a lot of frustration in the chain. The customer has to deal with downtime of production, leading to angry phone calls to the customer support department. The customer support staff is angry at the logistics department, because the conscious component had been sent from there. The staff at logistics, in its turn, point back to the supplier, who did not provide the proper package. The supplier immediately bounces the ball back. How could he know the conditions under which the component would be transported? In short, everyone points to each other.

Preventing DOA's for the producers of high-tech systems is becoming increasingly important. After all manufacturers do not supply systems, but services. Customers pay to use it, not for possession of a machine or production line. That means that the producers feel the cost of downtime directly into their own pockets. Moreover, this kind of service is associated with service level agreements (SLAs) in which tight arrangements for availability of systems are established. If a producer can not fulfill agreements, it can cost a lot of money.

A QUARTER PROFIT MORE

As previously noted DOA's are high in the top 10 annoyances. Yet there are very few companies who are trying to find a structural solution for DOA's. Main reason is that they are insufficiently aware of the costs. As mentioned above, the costs linked to DOA that can quickly be about 2 to 5 percent of sales. That does not seem much, but if you considers that the major high tech manufacturers in the Netherlands convert sales that run into the billions, you understand that we are talking about millions.

The problem is that it often concerns indirect costs, which are not easy to make insightful. Firstly DOA leads to a lot of paperwork, emails, phone calls, and unrest in the organization.



For each DOA, moreover, a new component has to be sent for which sometimes even courier services and taxis are called in. Meanwhile, the service engineer often has to remain one or two and even three days on the site.

If the arrangements in the service level agreement (SLA) can not be met, a DOA can lead to a towering penalty. When a machine or production downtime leads to lost revenue, a customer claims lies in wait. And in addition customer satisfaction is also worth money: will the customer still be knocking at your door for the purchase of his next machine?

A prudent assumption shows that the actual cost of DOA is easily ten times bigger than the 0.2 percent referred to damage components. That would mean an average of 2 percent of sales spent on direct and indirect costs due to DOA.

That's a lot, because if you start from a profit before tax of 8 percent which you would be able to increase to 10 percent, you're talking about a net profit increase of as much as 25 percent! In other words, addressing DOA and can easily lead to one-quarter profits. Who is not sensitive to such figures?

Signed,

Prof. Dr. Walther Ploos van Amstel

EPILOGUE

Every day we, as industrial packer, are approached with requests for new or improved packaging. In a number of cases, the question is correct, but in many cases it is not the packaging that needs to be improved, but the auxiliary process.

Even when it comes to packing, prevention is better than cure. FPC distinguishes itself from other packaging design agencies, by having especially an eye for the process about the packaging. It could also be that by modifying or improving the processes, the customer does not need new, better or more expensive packaging. Should it be that the process anyway demands a better packaging, we make sure that we understand the process completely so that the packaging can withstand the hardships they have to undergo.

Another aspect that we face is that we want to learn from past mistakes. If unfortunately something goes wrong once in your supply chain, make sure that adequate corrective measures are taken to avoid repetition. That way your organization is also self-learning in the field of packaging. FPC has organized this seminar with pleasure. I would like to thank all the participants and especially Prof. Dr. Thank Walther Ploos van Amstel for their invaluable contribution.

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COLOPHON

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