Optimize your shipments:

Stop Transporting Air

Artificial Intelligence optimizes Truck Fill

STREAMLINE LOGISTICS OPERATIONS FROM YOUR LOAD
PLANNING SOFTWARE TO ITS IMPLEMENTATION

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INTRODUCTION

For Supply Chain for FMCG, Transportation Management and Operations, the loading stage within a truck or container, hast to be planned for cost optimization where available space has to fit as many packages as possible so that less trips and trucks are required for the same amount of goods shipped.

Load Planning optimization ultimate goal **is to load more** but considering many constraints such as shipping and fuel costs, weight and dimensions, maximum weight per transport, international and regional regulations, maximum stowage, varying packaging shapes, to maintain the products in good conditions, movement of packages withing the container, among others.

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NOT TO TRANSPORT TOO MUCH AIR

When optimizing packaging and shipments it is a major concern no to transport too much air, the ultimate goal is to minimize empty spaces or avoid shipping air. This means transporting as many products as possible per load, thus optimizing the transportation process and by doing this reducing unnecessary costs and optimizing budgets.

MARKET DRIVERS

A 2015 study[1] revealed that sub optimal shipment loading can make up on its own 8.7% of the ExW[2] price, without taking into account other logistics costs such as inventory management, inventory transit, customer service and storage. Combination of these factors can easily be double digit and an important cost for the final consumer.

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1   Jiménez, J; Bueno, A; Jiménez, E; & Cedillo, G. (2015). Efecto del cubicaje en el costo logístico del transporte y competitividad empresarial. Laboratorio Nacional de Sistemas de Transporte y Logística. Instituto Mexicano del Transporte. Publicación Técnica No. 440. https://www.imt.mx/archivos/Publicaciones/PublicacionTecnica/pt440.pdf

2   ExW is a shipping arrangement in which a seller makes a product available at a specific location, but the buyer has to pay the transport costs.

Sub optimal shipment loading can make up on its own 8.7% of the ExW price!

Economic uncertainty and consumers' propensity to "trade down" have increased cost pressures on FMCG companies, making organizational efficiency even more important, and forcing FMCG executives to drive out costs without jeopardizing service.

This is not an easy task, McKinsey researched that less than half of the top 30 CPG organizations managed to reduce SG&A by more than one percentage point between 1997 and 2007[3].

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3 Consumer Packaged Goods, February 2012, Mckinsey & Company.

Often in FMCG Companies the logistics costs are unbound and truck fill for DSD, LTL or Distribution Center to Retail Store are sub optimal, day by day all year long. These costs are overseen and can be easily cut off, helping executives achieve more than 1% point on cost cutting, just by optimizing the loading process.

Much of the transportation industry is focused on lowering costs since cost is the backbone of surviving in the market jungle. High costs are due to sub optimal and slow transportation processes and have various consequences from loosing business to bankruptcy. The more efficient a transportation company is, the larger their profits.

Efficient and optimized for shipping is as important as **speed** in the goods loading process since more can be done in the same time frame.
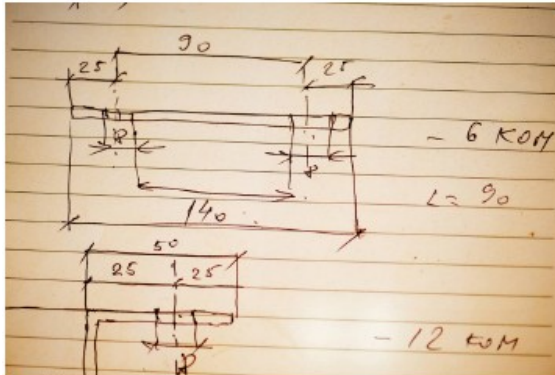
PROBLEM: SUB OPTIMAL SHIPMENT PLANNING AND LOADING

There are two parts of the process, planning and loading. Planning gets done through complex algorithms while loading is performed mainly with lift trucks.

Currently there is a vast offer of Load Planning Software where you can input many variables and get suggestions on how to optimize your shipments; but these are computer models that still have to be recreated in the real world, where specialized technicians implement the model prior to loading time with manual tools for measurements.

This gets tricky when the packaging is not rectangular but irregular, and measurement errors modify the algorithmic bases loading model. This model to real world recreation has to be performed with lift trucks in the shortest possible times, so at the end errors are introduced in the shipment loading, and as a consequence reducing your Competitive Edge.

In addition to reducing overall transportation costs, there are other reasons why optimizing shipments is a requirement for beating the competition.

Reduce Potential Risks to Product

When there is unused space around each package, it leaves room for packages to move during transportation. Products may slide or bump into each other, fall if stacked, and sometimes get damaged.

Sub optimal shipment loading and planning increases the product risk and as a consequence increases unnecessary costs.

Health and Security Implications

When shipments are optimized then it is safer for people to work around since shipments will not suddenly fall and harm people due to uneven weight distribution or incorrectly stacked packages or products.


During transportation it is also possible that a sub optimized shipment planning and loading causes truck tip overs due to unwanted changes on the point of balance.

When a truck weight is shifted to one side, even when it does not tip over, if transporting dangerous chemicals or other hazardous materials, they can leak out, leading to further safety issues in addition to environmental contamination.

Loss of Certifications, Contracts and Licenses

Sub optimal shipment loading may not meet shipping requirements, and this can lead to a number of fines and other penalties that can include the loss of licenses or certifications, and depending on the number and/or types of noncompliance it can even result in voided contracts.
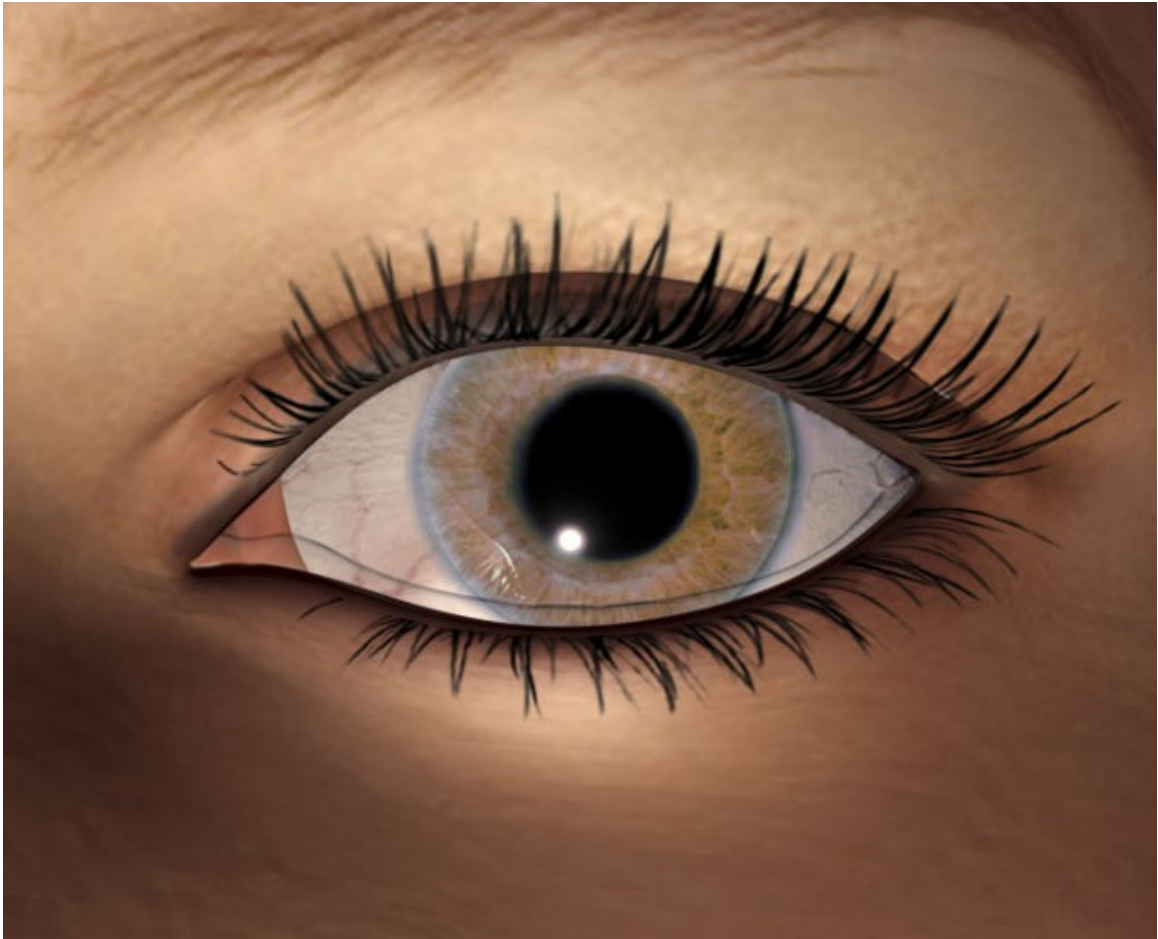
THE ARTIFICIAL INTELLIGENCE SOLUTION

What if the loading optimization is supervised automatically through Computer Vision on site and with an error margin of 0.19 inches (5mm) on measurements?

This is possible thanks to Artificial Intelligence that works with humans and helps us achieve total compliance with the algorithm optimized shipping planning.

What is Artificial Intelligence

Artificial Intelligence (AI) is a branch of Computer Science that deals with the simulation of intelligent human behavior through computer software.

Such software is a flexible agent that perceives its environment, decides upon existing variables and decides upon a universe of possibilities which are the best actions that can maximize its success given a clear and measurable objective.

AI needs to be trained, all the training is stored in a format that is called *Artificial Intelligence Model (models)*.

What is Machine Vision

Machine Vision (Computer Vision) is an interdisciplinary scientific field that deals with how machines can be made to gain high-level understanding from digital images or videos.

The objective of Machine Vision is to enable automated identification, detection and interpretation of events, subjects of interest and generic situations that are depicted on digital images or videos.

Artificial Intelligence works best on task specialization, not on broad activities nor human like interpretation of situations. But since each of the three step solution we propose is a candidate for automation and is expected to maximize its specialization level, then AI is the best suit for each of them.

SUMMARY: SHIPMENT LOADING

The main opportunity on Shipment Planning and Loading Optimization is the Shipping Dimensions and Cubing, specifically the model to real world recreation or the streamline from planning to loading.

Special and irregular packaging complicates the optimization, packaging with non rectangular shapes or packages with distinct dimensions within the same container.

Optimization of Shipment Loading must include the following

1. Less than 0.19 inch error margin.

2. Automated measurements that notify logistics personnel on real time.

3. Capacity to detect 3D dimensions on boarding / shipping areas.

4. All analytical data has to be available to you in order to validate the efficiency of your Shipping Planning Software.

BRAINGINE: SHIPPING OPTIMIZATION POWERED BY ARTIFICIAL INTELLIGENCE

Braingine is the Machine Vision Company, we understand the challenges that prevent FMCG and Transport Companies cut costs for Shipping Planning and Loading that occur on a daily basis.

Braingine helps you cut costs and reduces both time and errors on the shipping area so your Shipping Plans are executed correctly, thus helping you maintain the Shipping Optimization that increase your Competitive Advantage.

Braingine complies with all 5 attributes of an Intelligent Retail AI software, with the added flexibility that your business requires.
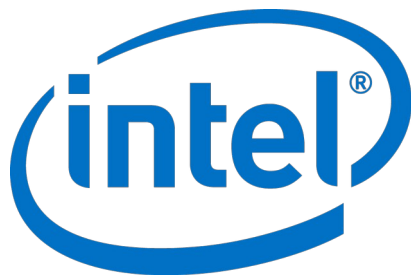
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