

*PROVIDING INNOVATIVE SOLUTIONS WHICH OPTIMIZE SPACE &  
ORDER FULFILLMENT WITHIN THE SUPPLY CHAIN*

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## Heads Up..Here's Seven Supply Chain Network Modeling Pitfalls To Avoid

When considering the business rationale for undertaking a distribution network optimization, supply chain executives are first and foremost concerned with an ROI to justify the project. To achieve this and to be confident that the modeling effort will be conducted rigorously and with carefully applied best practices, executives should seek experienced network design consultants to collaborate with their project teams to interpret and consider every aspects of how industry trends will impact the development and implementation of potentially successful solutions. Even then, the most experienced network modelers can overlook these seven pitfalls that can have extremely negative affects on the process of achieving a justifiable ROI. Here's a heads-up on what to look for.

**Freight Costs ≠ Flow Volume:** A classic case that is often not handled properly. For instance, where current I/B shipments to a plant or DC have a large average shipment size on a lane, but based on a scenario, those volumes decrease to the point where either ship frequency would need to decrease drastically to keep the same average size, or the rate per volume needs to increase to reflect the smaller loads.

**Misnomer of Inventory Optimization:** Multiple scenarios can be used to effectively bracket the inventory effect of various scenarios, and thereby one optimizes inventory as part of the overall cost minimization through analysis; however, inventory is almost always a post-run calculation. That is, it is not part of the objective function in the model, and is not really “optimized” as part of a single scenario. Best practice: Savvy scenario run plan development and flexible evaluations are what create conditions to optimize inventory; the models do not optimize an “inventory” variable.

**Operational Costs Are Not All Variable:** For example, labor costs (a portion, or sometimes all) are typically put on a variable cost basis, and increase/decrease in total based on throughput. However, in the short term, even the most variable labor forces (except perhaps in a 3PL setting where clients are charged per pallet in/out, etc.) will not change head count  $+/-1 \times$  when volume changes. Understanding just how fixed or semi-fixed labor realistically is at a DC and then properly modeling those dynamics is critical to establishing accurate operational costs. Detailed XLS DC modeling, grounded in solid facility design and implementation expertise, goes far beyond what is typically represented in a network model.

**Peak Adjustment Factors:** A common shortcut for representing seasonality in a single-time period model is to adjust an annual capacity figure by a formula that accounts for peaks. While mathematically interesting and simple, the relationship between what results you get through such an approach, and what you would see with a true multi-time period model, can vary greatly. We've seen significant misapplication of network capacity if the effort to create a time-phased model is not correctly structured.

**Split Shipments:** The use of bundling and similar techniques to ensure no split shipments is not a widely used practice (or used correctly). Rather, rates should reflect the characteristics of shipments (products, customers, mode, sizes) that are allowed in a scenario.



## Network Modeling

### Pitfalls To Avoid

#### (Continued)

A classic flaw is to show savings from bypassing DCs and moving plant-direct for select products, not recognizing both the impact at the mixing centers (DCs) of lower shipment sizes, and the true cost of the direct shipment. Projects that have questions regarding what should go direct, and what should go through consolidation centers should be modeled distinctly differently.

**Missed Aggregation of Product Groupings:** Both product and regional aggregation can be overlooked with simplistic assumptions. Whether domestic sourced or Asia pre-built assortments for consolidation, understanding in detail how to do SKU and product groupings can be one of the most important business assumptions to clarify for the model. Creating “logistically distinct” product groups are usually not the same as “marketing” product groups.

**Sensitivity Analysis is Not the Efficient Frontier:** Endless back and forth often delays and confuses the path forward. But the executive team needs to understand more than the optimal answer from the model. Effectively guiding the project team on those factors that distinguish success, risk, complexity, and opportunity by applying “min-max-regret” and other operations research strategies are powerful tools we can bring to help executives understand holistic business risk and opportunity.

There's an enormous amount of data to collect and digest when undertaking a network optimization project. With this tidbit of knowledge on the seven modeling pitfalls to avoid, there should be a greater degree of confidence that the modeling process will provide the lowest landed cost and an ROI that justifies implementing the right solution.

*This article was brought to you by Peach State Integrated Technologies.  
www.peachstate.com*



An online business dictionary defines kitting as “A process in which individually separate but related items are grouped, packaged and supplied together as one unit”. It goes on to provide examples that include power sources and cords being supplied with electronics, software bundles that are included as part of a technology purchase, products that are grouped together for consumption in a pre-determined ratio in a manufacturing process or food products that are combined to create a “new” product made up of several existing SKU’s, such as a gift basket.

The processes behind kitting are usually nothing new – they typically mimic processes that occur on manufacturing floors around the world every day. The interesting challenge is that when these processes occur as part of a manufacturing process or operation, they are usually analyzed, evaluated and measured in very granular detail; however when they happen in a distribution operation, they can be treated as an afterthought, with little regard to best practices, productivity, safety or other key metrics that can significantly impact your bottom line.

If you are running or considering a kitting or sub-assembly process as part of your operation, you will want to make sure that you've created a sustainable, repeatable, safe, efficient and ergonomic process. You should begin by asking yourself the following question

**How long will I be doing this?** – If this is a very short-term commitment to solve an immediate, urgent problem or to help a customer, then it probably doesn't make sense to analyze or evaluate much investment in infrastructure. If this will be a long-term or ongoing operation, it needs to be set up as efficiently as possible.

**Do I have adequate space?** – Failing to allocate adequate space for the operation, including staging incoming materials and outbound kits, can result in productivity reductions of up to 50%.

**Have I considered ergonomics and employee safety?** – While you'd never intentionally put your employees at risk, it's not uncommon to see kitting operations hastily implemented with little regard for the associates staffing them. You need to put the same level of

## Getting the most from your kitting or sub-assembly process:

**A few questions that you should ask yourself before implementing this process as part of your operation.**

thought into the work environment and ergonomics that you would anywhere else.

**Have I invested appropriately in automation?** – Depending on the complexity of the kitting process and the length of time you're expecting it to be part of your operation, you should run the calculations on several scenarios to evaluate the ROI on different levels of automation.

**Have I documented the best practices for my operation?** – Like any process in your environment, your kitting operation should have detailed, documented SOP's that apply to every task in the kitting operation. These SOP's should be the foundation for training and for any coaching that takes place.

**Do I have a system built in to track my products through this process?** – It is important that product moves to and from kitting are tracked the same way and with the same level of timeliness as any other move in your operation. If product in the kitting operation goes into a “black hole” in your inventory or ERP system, it will only be a matter of time until your associates begin circumventing the system by inventing “workarounds” to accommodate the lack of visibility.

**Do I have realistic productivity goals?** – You need to set productivity goals for your associates that are reasonable and achievable while still being aggressive. Depending on your organizations' culture, these goals could be based on Engineered Labor Standards, Reasonable Expectancies, Historical Data or some combination of the above.

**Should I get a “second set of eyes” onto the kitting operation?** – You may be a highly experienced Distribution professional, but unless you also have a Lean Manufacturing background, another viewpoint can be extremely valuable. You can “borrow” some expertise from your Manufacturing group or bring in some outside expertise, but be sure that you get the benefit of other available resources in this process.

*To gain a deeper insight into these questions as well as another questions you should be asking yourself please visit the full article at: <http://bit.ly/29kUHaq>*



## Blue Spot Light on Safety

If you spend any significant amount of time in a modern warehouse or cross dock, you have likely seen a bright blue dot moving across the floor directly behind the forklifts.

While they are relatively new to the industry, they are quickly becoming a mandatory safety item in many industrial environments. They offer some very unique advantages over backup alarms and other devices. Here are a few of the key things to consider:

- Not affected by sound:** In busy industrial environments, the sound level can drown out a backup alarm. In fact, applications like mills often require the use of hearing protection, which directly hinders alarms as a safety device. Blue Safety lights

are not affected by these concerns, making them an ideal device for these applications.

- Directional:** In areas with multiple forklifts operating at once, the ambient noise and multiple alarms often make it impossible to distinguish where the sound is coming from. Blue Safety lights are very clear and definite- See a blue dot, know equipment is moving. In addition, you can immediately tell which direction the equipment is traveling, even if it is hidden around a corner or racking.
- Intuitive:** Visitors and those not familiar with industrial environments do not need training to recognize the visual aspect. It is very instinctive to follow movement with the eye, even if they are distracted, wearing headphones, talking, or otherwise not fully aware.
- Ideal for electric forklifts:** As the

industry has quickly adapted to the use of electrics for lower emissions and operating costs, an unexpected issue has been the safety concerns of pedestrian/forklift interaction. Silent electric forklifts benefit greatly from the increased awareness offered by Blue Safety Lights.

- Cost-effective:** They are built using ultra bright LEDs which are so long lasting they can be considered a lifetime bulb. Compare this to audible alarms and strobes, which require periodic replacement. This saves on maintenance costs, and replacement parts costs. Installation is simple, and the low power consumption does not load electrical systems substantially. In addition, they are compatible with various voltages.

*This article was brought to you by Mallard Manufacturing, [www.mallardmfg.com](http://www.mallardmfg.com)*

## Upcoming Events

**Event: Chicago Supply Chain & Sustainability Summit**

**About:** Explore the constantly evolving industry of supply chain management at our 5th Annual Chicago Supply Chain & Sustainability Summit. Join supply-chain professionals and leaders for a robust agenda of critical topics, industry-leading speakers, and the opportunity to network with supply chain management experts and peers.

**Location:** Chicago, IL

**When:** October 17, 2016

**Register:** <http://luc.edu/quinlan/scm/summit/>

## In the Press

**Associated Launches a New Website to Better Satisfy Customer Demand**

Associated launched their new and improved website to provide users with a more interactive experience aimed at further educating the market on Supply Chain Best Practices and to learn more about the full suite of services Associated offers.

**Associated Announces Organizational Changes Aimed at Creating the Ultimate Customer Experience**

To insure Associated is properly positioned and staffed to sustain our growth, a new position, Director of Human Resources, has been established. This is consistent with other Director positions recently established in Operations, Consulting and Integration, Marketing and Business Development and most recently Finance. These positions actively drive our growth and success by providing day to day leadership for their teams as well as proactive strategic direction to insure our continued market leadership position.

Associated is pleased to announce that effective immediately, John Davlantes has been selected for this position.

*To view the entire press release please visit our website at: [www.associated-solutions.com/about-us/news](http://www.associated-solutions.com/about-us/news)*

## New Versus Reconditioned Lift Trucks... Factors to Consider

**While most Companies would like new equipment, inclusive of the latest technology, lifting and speed capacities, programmability, and safety options, sometimes budgetary limitations force a decision between new and used equipment.**

As an example, new, electric lift trucks, with standard specifications, option packages, battery and a charger will cost about \$25,000.00- \$35,000.00. A similarly-equipped used lift truck will cost about \$12,000.00 - \$15,000.00.

This difference in costs must be compared to the current hours on this unit, the ongoing maintenance costs, warranty considerations, the application being addressed, and the extent of the seller's reconditioning process associated with this used machine.

As a first step when buying a used lift truck, the buyer should consider the source of this used unit, and the risks to their operations associated with that seller.

Private individual sellers are far-and-away the riskiest choice. This seller will often market their equipment with no reconditioning work being done to the lift truck. They typically will have no support staff for maintenance and repairs that may be needed, offer no warranty, and have no consideration for that unit's success and dependability within your operation, nor the impact to your downstream customers.

Additionally, Private sellers typically have limited purchase option and terms. Most are limited to a cash-and-carry type of transaction.

Lift truck Dealers are the preferred sellers of used or reconditioned equipment, and most have many more purchase options available to the buyer. They will often replace their rental fleet at predetermined intervals or hour-usage accumulation, which yield a very wide variety of available units, capacity, and spec combinations. In many cases, these units have been maintained by factory-trained Technicians.

These sales will come with support after the sale should any problems or issues arise. Typically, a lift truck Dealer can provide expertise relative to the match between the lift truck and the application it is destined for.

When deciding between a new or used/reconditioned lift truck, an application analysis beforehand is of paramount importance and is recommended. Most used/reconditioned lift trucks will do well in an application of 4-5 hours per day, single shift, ambient temperature, and a maximum life expectancy of 3-4 years. Should your application be more severe than this, and your need is for 5 or more years, a new unit purchase should be strongly considered.

Whether you choose to buy new or used equipment, lift trucks are widely considered to be a huge benefit to your operation and the support of your customer base.



## Associated University Events

### The Great Balancing Act - Optimizing The Distribution Network

**When:** August 3, 2016

**Register:** <http://bit.ly/28PG2UG>

Senior executives across all industries share two common goals: Increasing Shareholder Value and Delivering Bottom Line Results. This presentation will define the reasons to undertake a network optimization project, explain the analysis process and demonstrate the benefits of network optimization through real life case studies.

## About Associated

Celebrating over 50 years of providing customers with innovative solutions that optimize space and order fulfillment operations within their supply chain, Associated understands that handling materials in the supply chain should be more than material handling. By utilizing their unparalleled experience and industry best practices they are able to evaluate current methods and processes for storage, order fulfillment, labor and equipment utilization and recommend practical strategies to enhance their effectiveness and reduce overall cost.

In 2014 Associated acquired Peach State Integrated Technologies Inc., a professional services firm that provides strategic supply chain consulting and automated material handling solutions for their global clients.

The merger has made the combined organization one of the largest supply chain solution providers in North America in both size and breadth of solution offerings. Featuring leading-edge engineering, fleet optimization and labor management solutions to complement industry-leading sales, service, rentals and parts, Associated has been the recipient of multiple awards in recognition of being a premier organization in the supply chain industry.

### Our Locations:

Georgia: Norcross

Illinois: Addison, Bloomington

Indiana: Indianapolis, Fort Wayne, South Bend

Iowa: Ankeny

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