Elastic Warehouse White Paper Series

Chapter 2

What is an `Elastic Warehouse` – and why do we need it?

In Chapter 1 we explore our 'I want it now' culture and discuss the issues and challenges faced by logistics managers to manage demand exactly when and where required to meet consumer seasonal peaks and trends. One of the solutions is an `Elastic Warehouse` which allows the flexibility to bend, grow or shrink in line with the demands of the supply chain at a moment's notice, all within the parameters of the existing property.

How flexible is your warehouse?

Every company is different, comprising varying warehouse footprints, geographies, skills, technologies, customer profiles and locations, as well as regulatory and perhaps even cross-border legislation and compliance. And of course everyone will have slight variances in the way different types of stock are managed, in the food industry for example, that might be ambient, perishable or frozen . In the same way, there is no one size fits all Elastic Warehouse model. There are four distinct approaches that can be adapted to suit the demands of the operation today and tomorrow. This paper sets out how to identify the best model to adopt for your business.

Where to start?

Embarking on a strategy to become an Elastic Warehouse may seem daunting but it needn't be if you can focus on a model that best suits your operations and your future ambitions. There are four model approaches to achieving an Elastic Warehouse which we discuss in detail later in this white paper but in brief are:

1. Elastic Overheads – making your existing technology, people and warehouse space investments work harder.
2. Elastic Outsource – outsourcing warehousing and distribution of key seasonal lines for a finite period.
3. Elastic Tech - a complete technology lead implementation.
4. Elastic Blend - cherry picking the elements of the first three approaches to give the ultimate financial and operation control.

The "Elastic Blend" is likely to be the one model every company aims to adopt, but for some, it will only be reached by taking a scalable phased approach, starting with examining and documenting existing procedures to see where and how a flexible approach can be adopted, where the gaps are, and where and how improvements can be made, before progressing to the all encompassing "Blended" strategy.

So how do you identify the best route to take? First and foremost, as with all strategies it's best to undertake a gap analysis. This might be something you can manage in-house, alternatively, it could be something you commission a supply chain technology expert to undertake for you. If you use a supply chain expert they have the advantage of being able to explain the functionality of processes, improvements and the functionality of the software

that will ensure elasticity is achievable, however it is important make sure they have the expertise to appreciate your current situation and your long-term goals.

A good advisor will be able to help you realise more from your existing infrastructure and investment so you can make immediate gains. They should also be able to recommend an implementation that is flexible, and allows you to scale the operations and technology whilst minimising the impact on your current operation.

Whichever path you choose it will be necessary to be very clear on what you want to achieve by implementing an Elastic Warehouse. Do you want to diversify and move from frozen into perishables, or introduce more seasonal ranges into your FMCG operation?? Do you want to take a slice of the international export market? Do you want to specialise in a particular high risk but high profit market? Or is it about offering more choice to customers as to how and when they receive orders with services such as click and collect?

The market is changing in line with technological advancements, and the way people can now order and receive goods means consumer expectancy has never been higher. The resulting pressure on organisations to shrink or expand to meet consumer demand, and manage their logistics and supply chain operations for services such as same day delivery to store or home or 'click and collect', is certainly on. Interestingly with consumers having the ability in some cases to order directly from the manufacturer or retailer there could be instances where a warehouse is not needed at all. When you are clear on what you want to do you can move on to the next stage of how you achieve it.

Step by Step.

The first step will be to map out every process in the chain and identify 'what should be happening' versus 'what is currently happening'; taking into consideration 'what could and should happen' within the parameters of an Elastic Warehouse model.

This will allow you to identify current points of weakness, processes which repeatedly fail, or even identify where your assets, be they technical, staff or facilities, are not used to their full potential or capacity. For example, if you find you currently employ 6 people to check orders have been picked correctly , which would need to increase to 10 to meet demand, then it may be time to ask if the process itself is fundamentally hindering your chances of expansion. Can these people be used in another way? Can we be sure that picks are done right first time every time using technology? Can these people be redeployed and used to pick more orders and increase productivity?

It's also vital every process is looked at through a regulatory lens, to eliminate any threat of introducing risk to the supply chain as a result of change. The last thing you want to do is be the root of an E.coli outbreak at a time when you are trying to win more business.

The final stage is to consider how SLAs will be affected – will the changes you make uphold them? Or can you deliver an even better service and differentiate your company as a result?

On completing your assessment, you will know exactly what capacity you will need in the short and long term relative to the capacity you have. You'll be in a position to move to the

next phase, which is to map your business to an Elastic Warehouse model. The following section sets out the typical scenarios the models lend themselves to and the reviews that need to be undertaken.

1. **Elastic Overheads** - This model works on the principle of making your existing investments work harder and will comprise technology, people and warehouse space. It involves use of the latest technology to optimise all assets, including staff, helping you to do more with less. This model therefore works at its best when scheduling tools that link into the ordering and fulfillment systems are adopted, as it helps to determine how many people are needed, when and where to cope with the inbound and outbound demand. It is likely to require a core technology set comprising a process management system coupled with handheld technology used to check in, find, pick and allocate stock as the warehouse expands. This is especially true as more SKUs and greater quantities of a SKU are managed, creating the need to be able to accurately forecast stock levels and demand at any one time. It is likely to comprise all of, or a combination of the following initiatives:
    - Evaluating the employee demographic to understand language differences that may need to be accommodated, or identifying training gaps to improve productivity.
    - Identifying mechanical / vehicular and equipment requirements e.g. forklifts, picking arms, totes, racking and shelving.
    - Reviewing the way technology hardware, applications and work management / ERP / WMS tools are used to check they can cope with additional warehousing space, different staffing hours and continually changing locations.
    - The technology review must include eradicating obsolete processes, improving broken ones, and introducing new ones to cope with the capacity demands within the same warehouse footprint. It should also consider whether the technology itself is capable of processing the data at a fast enough pace.
        - If you are looking to implement a WMS system, you should select one that is capable of handling a constant shift in warehouse parameters or rules. A WMS should allow enough flexibility to keep control of the warehouse shifting diameters, or product requirements. If barcoding is used then you should consider moving to real time data capture using rugged mobile computers over a wireless network if you are currently using batch collection.
        - You may need to consider the use of voice picking technology to support a workforce that may not have a good command of English to deliver picking instructions to them in their language thereby increasing accuracy and speed.

        - You should also review the number of mobile devices in use to ensure you have sufficient to cope with peak times and sufficient chargers to ensure new shift workers are always provided with a device that has a full charge.
        - This may also require you to carry out a wireless site survey to ensure you optimise wireless coverage which can get blocked by racking.
    - A review of scheduling to accommodate 24-hour delivery schedules for inbound vehicles, with allocated time slots and docks for arrivals, and altered shift patterns to ensure lorries can be unloaded quickly to enable rapid clearance to accommodate the next lorry.

Elastic Outsource – This approach maintains the status quo of day to day operations, and uses a third party to take on the seasonal demand for a finite period. Useful when:

- The extra capacity is required for a finite period of time and demand is infrequent.
- The day to day demand for core lines will not change and needs to be maintained and is already deemed at full capacity.
- The Elastic-Overheads approach is impractical.
- There are strong economics and the benefit outweighs the cost.
- The suppliers of the seasonal lines are different to those of the core lines.
- Technology can be easily integrated into those of the third party to ensure management teams have continuity of information no matter where the stock is geographically located and regardless of which company is managing that stock.

Elastic Tech – This approach uses the existing footprint more efficiently by implementing technology across the whole supply chain. It may require elements associated to an Elastic Overheads model but the investment, for example in more people and equipment, is relatively low as technology can be used to bridge the gap. Ideal for very large operations managing large volumes of goods, or disparate warehouses and distribution centres. Typical technology implementations include:

- Introduction of hand held data capture and scanning devices to quickly scan items into the warehouse and send them to the designated storage area
- Warehouse Management Systems that know where every barcoded item is in the warehouse so it can be found quickly and easily, and orders fulfilled with 100% accuracy.
- Applications on mobile computers that provide real time information about the speed of operations, and uncover and alert management teams to bottlenecks.

- Mobile printers to produce customer order / address labels that can be put onto pallets as soon as they are picked to avoid delays.
- Technology to integrate into all other enterprise systems and often those of the supplier and the retailer.

Elastic Blend - It's likely that the Elastic Blend will be the way forward for most logistic distribution centres. It takes the best of all worlds whereby the adoption and implementation of the latest technologies are complemented by changes to processes, and supported by trained people to deliver the desired results. It's best suited, but not limited to larger operations that have:

- the capability to integrate their systems into those of its suppliers and customers.
- a critical requirement to retain control of the end to end supply chain no matter the scale of the extra demand.
- a range of customer delivery or collection services that rely on an efficient distribution and stock transfer model.
- the financial capacity to invest in handheld and mobile computing technology and applications, and can train their people in efficient and effective use.
- demanding SLAs with hefty financial penalties.

There's no doubt that determining the right methodology for your company will depend on an in depth operational analysis of your business, but whichever methodology is adopted, the Elastic Warehouse and its benefits can be realised with detailed analysis and careful planning.