



## Postponement packaging for the pharmaceutical supply chain



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**Postponement, or late-stage customisation, packaging offers pharmaceutical manufacturers a way to rapidly respond to specific market demands, optimise inventory management and simplify their supply chain. A recent study showed that implementing a postponement strategy could cut lead times for finished goods by 35 percent, reduce obsolescence costs by 15 percent, and increase profits by as much as five percent [1].**

Despite these advantages, and despite the well-spread knowledge that the pharmaceutical supply chain is underperforming [2], major pharmaceutical companies are yet to fully adopt postponement supply chain strategies and embrace the approach to a significant degree. Part of the reason behind this slow adoption may be attributed to a lack of understanding surrounding the concept of postponement and what it can do for the pharmaceutical industry [3]. The other reason for this reluctance is to do with manufacturers' misconceptions of traditional packaging and warehousing models, which continue to be viewed as more cost efficient. What is not being considered is the impact that increased control over waste product and more accurate inventory management could have on overall costs, as well as the cost savings that managing stock from a single, centralised location could offer.

Of course, taking full advantage of the flexibility and reactivity provided by a postponement strategy requires careful planning and a clear understanding of the types of products to which it is best applied. This whitepaper will highlight the points that companies should consider as well as provide a guide to best practice for drug companies that are interested in developing their own postponement packaging strategy.

# A snapshot of the key considerations when implementing a postponement strategy

## 1 Product portfolio and market performance analysis

How do my products perform in their markets? How many different markets are my products active in? How volatile is my product forecast? Do I depend on tender markets?

## 2 Mapping of current state

How do my products get to their markets currently? How much stock do I currently end up writing off? How much rework do I need to do on my product? Am I always capable of supplying on time? How much capital do I have tied up in regional stock?

## 3 Design supply chain future state

What are my specific market requirements? How can I consolidate my supply for multiple markets out of centralised distribution centres? How can I leverage better communication techniques to get better visibility of my supply chain? From the moment demand arises, how fast does my product need to get to the end user?

## 4 Identify eligible suppliers & partners

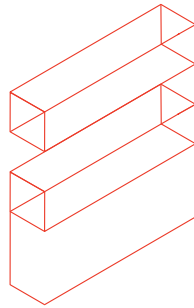
Who are my key supply chain partners? Does my packaging partner have the right knowledge and capabilities? Do my transportation partners have the right knowledge and capabilities?

## 5 Create implementation plan

How do I make sure my internal processes are aligned with a postponement strategy?

# The postponement principle

The idea behind postponement is to allow manufacturers to adapt to market-related variations, enabling them to lower working capital by reducing finished goods inventories, as well as shortening their return-on-investment cycle. In practice, this involves keeping a product market-agnostic for as long as possible.



Rather than finalising the product and moving it to a local warehouse, blank components or near-completed products are stored in a central warehouse and are only assembled when there is a specific market demand. When an order comes in, the product is tailored for the relevant market and shipped within days or even hours.

The concept of postponement was developed in the 1950s, with further milestone theorisation around inventory management and distribution channels in the 1960s and a categorisation of various postponement strategies in the 1980s [4]. Since then, its advantages have been clearly demonstrated in several major industries, including, most famously, the automotive industry. In 2006, for instance, China-based Shanghai General Motors (SGM) announced that adopting a postponement strategy had shortened its order cycle time to just six weeks [5]. Another major space where postponement is widely used is the DIY market. →





For instance, rather than storing an infinite number of pantones, many paint vendors stock tint bases and colourants that are mixed to match specific customer requirements [6].

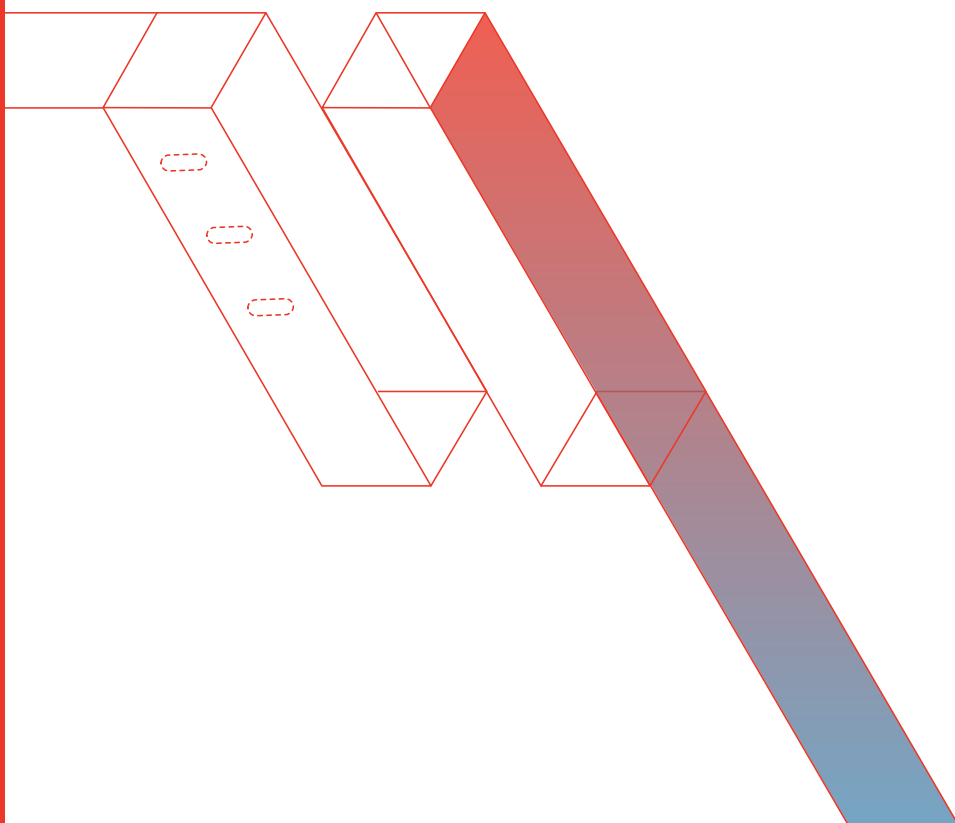
The adoption of a postponement strategy, specifically in relation to packaging, can offer several advantages to the pharmaceutical industry. Firstly, by allowing the pharmaceutical supply chain to be more agile, postponement enables manufacturers to handle market-related fluctuations with an increased level of flexibility. This means it is easier to scale packaging activity up or down for different markets and to meet unpredictable demand, as would be the case in tender markets. Consequently, pharmaceutical companies are able to **reduce time to market and fulfilment cycles** by several weeks, enabling medicines to get to patients faster. It also results in a more reliable supply chain: by building additional flexibility, postponement can **mitigate stock-out scenario risks** – which mean both medicinal shortages and lost sell opportunities.



Secondly, in terms of stock management, while traditional supply chain strategies are based on the storage of large quantities of finished goods, which are associated with significant costs, a postponement packaging strategy allows manufacturers to minimise the overall required stock keeping, **reducing inventory costs and working capital** [7]. Additionally, by allowing a pharmaceutical firm to supply multiple markets from a single, centralised location, the management and holding costs of having multiple warehouses in different locations are also reduced. →

And, finally, keeping a stock of near-finished, market-agnostic products that can be packed only as needed, eliminates the need for repacking or rework at a later stage, drastically reducing waste across the supply chain and thus **reducing obsolescence expenses**. In the European Union (EU), for instance, there are regulations governing the information that must be included on pharmaceutical packs. However, interpretation of the regulations across member states differs as do the language requirements, meaning that each country's packaging is different. In addition, due to stability reasons, bulk products have very short shelf lives. In order to increase this shelf life, setting the final expiry much further in the future (usually, about three years), a pharmaceutical product must be packaged in an air (and sometimes light) non-permeable primary pack. These two factors combined can make packaging a complex challenge for traditional stockpile-based processes, especially when supplying low volumes to a small market.

Seeing that advance prediction is rarely completely accurate, much rework – or, repackaging – must be performed, moving finished product from one market-specific pack to another. Moreover, in the event of changes being made to regulations, a stock of finished products would need to be potentially entirely repackaged. Postponement simplifies these operations by giving manufacturers the ability to add finishing touches that are in line with up-to-date, country-specific requirements at the last moment. Using a postponement strategy, the primary pack can be left un-customised and therefore not committed to a specific market. In other words, by safeguarding bulk stock in a near-complete state, postponement can futureproof product by making pharmaceutical pack changes much easier, **decreasing their exposure to the risk of regulatory changes**.



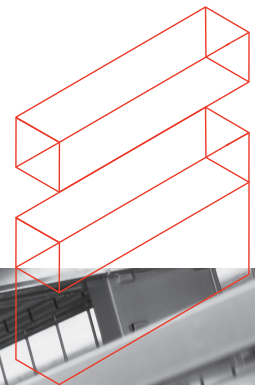
# Postponement packaging: key considerations

## Infrastructure

An effective postponement strategy requires a certain infrastructure to be in place. The core requirement of any postponement infrastructure – whether it be in the pharmaceutical industry or an alternative sector – is a **central facility** or warehouse where components or near-complete products can be kept and then combined into finished products when orders are received. The choice of warehouse location is crucial. Postponement's core principle of on-demand assembly makes it possible to serve multiple markets from a single location. It is, therefore, important for the warehouse to be based in a location from which it can serve and respond to the demands of multiple countries, making **easy access to transport links** essential.

Another point to consider is **communication and data sharing** across the supply chain. In order to enable a timely response to a quickly arising and shifting demand, a postponement strategy requires precise planning and well-connected company-wide operations. This means having the correct, complete and relevant data at the right time. In other words, postponement requires complete end-to-end visibility of a business' processes, including advanced data analysis and forecasting.

In addition, a pharmaceutical company that wishes to adopt and implement a postponement strategy, should consider the **reliability of its suppliers**. In order to maximise the benefits of postponement, delivery of components must be carried out to strict deadlines. Transportation solutions must be accordingly flexible and reliable as well.





## Product portfolio

It is important to understand which products are best suited to a postponement packaging strategy. Almost every drug – be it branded or generic – that is sold in **multiple markets**, where the difference between the final products is solely in the packaging, would be suitable for and benefit from the implementation of a postponement strategy. While further research is required to determine the exact cut-off point at which postponement packaging stops being cost-efficient, current market estimation places it at extremely high volumes, making postponement a suitable solution for even the most widely sold drugs.

At the other end of the spectrum, for **very small volume** medicines, such as orphan drugs, it is often difficult to foresee market demand. In cases like these, where the risk of stock-out is even higher, adopting a postponement strategy that tailors the market-specific packaging to demand in real time can make a huge difference to the speed at which a patient can be treated.

Having the ability to finalise product within several days can also increase a company's performance in other areas of pharmaceutical delivery. The high value and extreme fragility of **biotech products**, for instance, often requires very short packaging cycles. Employing a postponement strategy can make it easier for companies to handle these medicines efficiently and ensure their safety and efficacy. With large molecule drugs, along with cell and gene therapies, becoming widespread it is clear that the pharmaceutical industry must adopt suitable supply chain strategies to meet new, and more unpredictable requirements. Traditional models, which were developed to cope with large volume products, fail to provide a sufficient solution to the packaging and distribution challenges that such new medications pose. A postponement strategy, on the other hand, can be optimised to the unique market situation of each new medicine, enabling the creation of patient specific packaging, finalised when a requirement arises [8].

Another significant case to consider is that of **single unit dose (UD) packaging**, or the packaging of medication in separate dosages required for a single administration. A UD pack would usually contain a scannable barcode as well as human readable information for each unit of administration. Despite being proven as the safest form of medication packaging for hospital usage, the availability of UD packaged medication directly from the market remains limited, primarily because of the investment required in customised packaging. For many hospitals, the solution is the repackaging of their medications into UD packs that are individually barcoded. This rework incurs enormous waste in terms of both time and materials and comes at a high environmental price. Seeing as postponement allows manufacturers to easily finish the same batch of blank blisters for multiple markets, it can also allow their customisation for hospital-usage, including a particular hospital, or even a specific patient.



# The future: A conclusion

For the pharmaceutical industry, postponement is the supply chain strategy of tomorrow, but its advantages are already numerous today [9]. By enabling companies to rely more on their own operational activities, and by extension reduce their dependency on stock keeping and inventory management teams, postponement can make their whole operation more agile and their service offering more flexible.

When used strategically, postponement can reduce a company's time to market and fulfilment cycles, ease the logistics of its entry into a new market, and optimise its supply chain, cutting out waste and rework.

In the long run, postponement packaging will lay the foundation for a supply chain revolution. Implemented to its full extent, it will not only simplify industry supply lines, but also enable the shortening and simplifying of the last stages before a product reaches the patient. Postponement can, in other words, be the catalyst of direct-to-patient supply of medicines, where the medicines are packed for a specific patient, including not only their name and details, but also special care instructions unique to them. These custom-packed medicines will not be the result of wasteful rework or quality-reducing wraps permeable to air and light – rather, they will be at the same quality and safety standard as all other medicines that leave the facility of a pharmaceutical company. By allowing market authorisation holders to sell directly to the patient, postponement will change not only the production of pharmaceutical products, but also the operation of the entire industry.



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