



# Innovations in Ecommerce Packaging

---

PRESCOUTER



## Packaging has become a top priority for many **ecommerce** providers.

Packaging is one of the most complex processes within the ecommerce operation, impacting everything from shipping costs to the customer experience. Previously, manufacturers rarely considered how the packaging would be used or transported. Today, the ecommerce packaging industry faces some challenges, including optimizing retail packages for home delivery, reducing costs, and avoiding unnecessary packaging.

This Intelligence Brief profiles **nine companies providing packages developed specifically for ecommerce**. PreScouter focused on including startups and small- to large-sized businesses, located worldwide, to better understand **newly commercialized technologies** and developing trends. Our search indicates that innovations currently on the market are related to **customization** and other **customer experience** features rather than the development of new materials.

# Society moved to ecommerce because it was necessary, but it will likely continue for the sake of convenience.



The pandemic accelerated this trend and included the sanitization factor. New packaging development and the adaptation of traditional packaging go through **several trade-offs** involving:

- ✓ **Sustainability** versus **weight and performance**,
- ✓ **Plastic** versus **paper/corrugated board**
- ✓ **Reoptimization** versus **underoptimization**

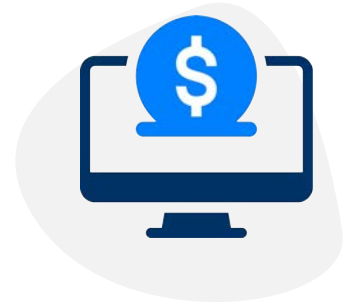
Key aspects discussed by specialists in the field range from general packaging optimization, **standardization**, **easy return**, and **reusable** packages to more technical characteristics such as **mono-material solutions**, **thermostability**, **barriers**, and **moisture levels inside the packaging**, especially when shelf life is being considered. Material solutions involving crop waste, mushrooms, and seaweed are also being developed, but there are still concerns about scalability.

---

New regulations are also in discussion regarding the product-to-packaging ratio, which used to be 50% and now should not be more than 10%.

---

# The global market value of ecommerce packaging was estimated to be **US\$49.2 billion** in 2020.



In 2018, the market value of ecommerce packaging globally totaled about \$23.4 billion. **The predicted growth over the 2020-2025 period is estimated to be approximately 15%, reaching \$98.2 billion.**

A study dedicated to the impact of COVID-19 on packaging supply chains indicated that the pandemic will have a lasting effect on this market. Global demand for packaging fell between 2019 and 2020, but there was an increase in consumer use of ecommerce channels in 2020 and an increase in sales by corrugated cardboard companies. **Corrugated cardboard represents about 80% of this market.**

On the other hand, in 2019, the estimated worldwide amount of plastic packaging waste produced by ecommerce activities reached 942 million kilograms. Packaging sustainability is an essential aspect of consumers' online purchasing decisions, ranging from sustainable

packaging to fuel-efficient transportation methods to reduce the environmental impact of deliveries. Some companies are mentioning an **eco-commerce trend**, which focuses on minimal and reusable packaging, refills and the reverse logistics involved, the use of non-toxic raw materials, and plastics recycled into durable essentials.

**Other trends include easy-to-open and easy-seal containers.** In 2020, a survey evaluated different types of packaging offered by the 21 most prominent ecommerce companies in France, and more than 60% had an easy-open mechanism. Additionally, closed-loop systems have been around for some time in factory logistics, but options for the final consumer are still being explored.

1. <https://www.smithers.com/services/market-reports/packaging/the-future-of-ecommerce-packaging-to-2025>
2. <https://www.statista.com/statistics/1174080/ecommerce-packaging-market-value-globally/>
3. <https://packagingeurope.com/a-look-at-packaging-supply-chains-post-covid/>
4. <https://www.smithers.com/resources/2018/nov/sustainable-packaging-materials-in-ecommerce>
5. <https://www.statista.com/statistics/1262381/ecommerce-plastic-packaging-waste-by-country/>
6. <https://www.statista.com/statistics/1255555/sustainable-ecommerce-interest-united-states/>
7. <https://www.linkedin.com/pulse/rise-eco-commerce-age-same-day-delivery-chris-lahey/>
8. <https://www.statista.com/statistics/1197383/types-ecommerce-packaging-proposed-french-companies/>
9. <https://www.dhl.com/global-en/home/insights-and-innovation/thought-leadership/trend-reports/rethinking-packaging.html>

# Ecommerce packaging does not necessarily have to fulfill all the functions of traditional retail packaging.



Ideally, the packaging will be designed specifically for each order. It is part of the product and its supply chain and should not be evaluated in isolation.

## Traditional packaging

Protecting the product

Carrying information and marketing the product

Enabling handling, storage, and use

vs

## Ecommerce packaging

Including supporting paperwork (receipt or other documentation)

Protecting during transportation and handling

Compact and ship-ready designs when possible (selection depends on the number of items, along with size and weight)

The COVID-19 pandemic brought a key requirement: Design that considers health and hygiene and substrate selection to minimize coronavirus survival rates.

1. <https://www.packaginginnovation.com/packaging-design/innovative-packaging-2/ecommerce-packaging-one-size-doesnt-fit/>
2. <https://www.mckinsey.com/industries/paper-forest-products-and-packaging/our-insights/beyond-covid-19-the-next-normal-for-packaging-design>

# Packaging companies must rethink their packaging design.



## OTHER TRENDS INCLUDE:



### Technology

The digitization of the value chain, which was accelerated by the pandemic, created the need to integrate technology into packaging through radio-frequency identification (RFID) tags and near-field communications (NFC).



### Perishable goods

Direct-to-consumer shipments of perishable products — especially food — are a smaller but growing segment. Preserving the product's shelf life and freshness is the main concern.



### Logistics

Logistics players need to make adjustments by evaluating current operations to ensure that new types of packages can be processed (conveyor belts, scanners, etc.) and delivered undamaged to their recipients.



### Materials

Simplify the number of materials per package; mono-materials or delamination features for multi-layer packaging.

1. <https://www.mckinsey.com/industries/paper-forest-products-and-packaging/our-insights/beyond-covid-19-the-next-normal-for-packaging-design>
2. <https://www.smithers.com/resources/2018/nov/sustainable-packaging-materials-in-ecommerce>
3. <https://www.dhl.com/global-en/home/insights-and-innovation/thought-leadership/trend-reports/rethinking-packaging.html>

# Amazon Certified Frustration-Free Packaging (FFP)



Sustainable packaging is becoming increasingly important to shoppers. A 2019 survey showed that 53% of US Generation Z (born between 1995 and 2012) shoppers felt that Amazon included excess packaging in their shipments.

Amazon has created a packaging certification program focusing on packaging that has the **right size**, is **laboratory tested** to minimize damage, is **made from recyclable** materials, and is **easier to open** (no wire ties).

The program includes products that were designed to be shipped to customers in their own packaging, without the need for additional Amazon packaging. Launched in 2008, it is an initiative that involves laboratory testing, machine learning, materials science, and manufacturing partnerships. From 2015 to 2021, more than 1 million tons of packaging material was eliminated by the program.

Machine learning algorithms were used to **optimize packaging selections**, identifying, for example, products suitable for flexible packaging, which is lighter and takes up less space than similarly sized boxes, and liquid products with the highest average rates of customer-reported damages, that would then undergo laboratory journey simulation testing to gather insights on how to improve the design of these packages.









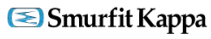


More than **1 million tons** of packaging material were eliminated by the program.

1. <https://www.statista.com/statistics/1100403/excess-packaging-amazon-shipments-generation/>
2. <https://sustainability.aboutamazon.com/>
3. <https://www.amazon.com/b/?%&node=5521637011>

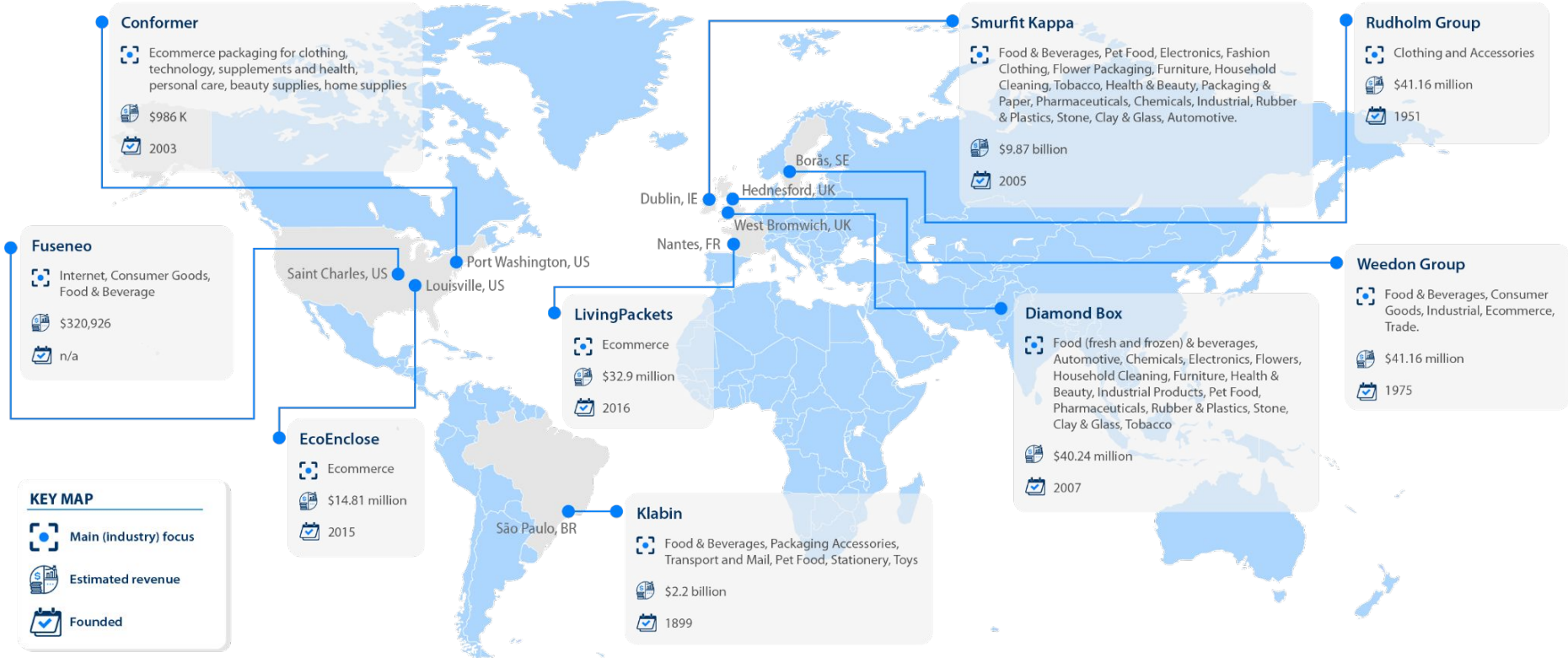
# Packaging developed for ecommerce: A summary of the profiled case studies



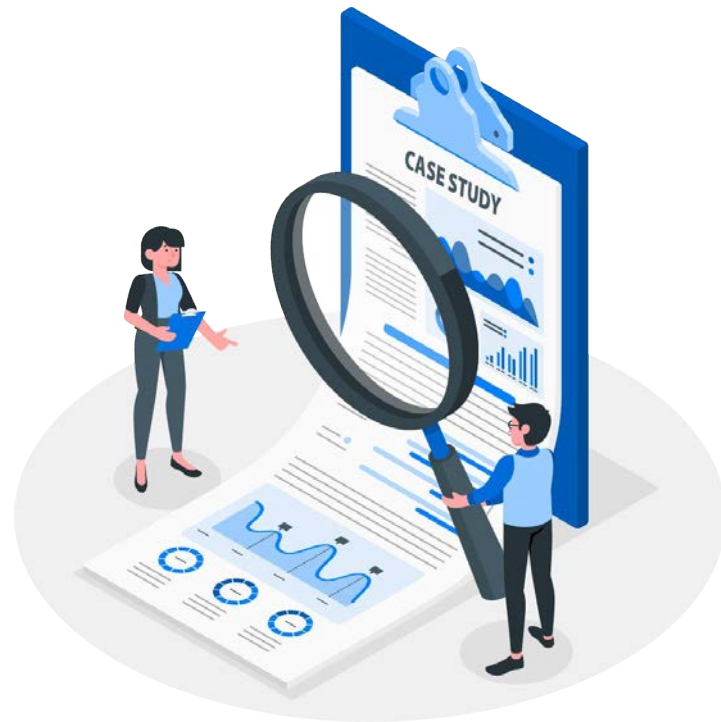
	COMPANY NAME	TYPE OF MATERIAL	CHALLENGES CONSIDERED DURING PRODUCT DEVELOPMENT
<b>Material used in the automotive sector that has been applied to a new packaging design</b>		Expanded polypropylene (EPP)	Optimize all logistics processes: reusable, durable, secure (digitally locked and monitored), trackable, easy to pack.
<b>Common materials</b>		Paperboard	Custom-made, durable, no assembly required, self-sealing, ship for less than a box, expand up to 2' and stores flatter than a bubble mailer (saves up to 75% on storage space).
		100% kraft/paper/card, recycled plastic, or LDPE bags	Durability, easy to pack, easier shipping and returns, eco-friendly (recycled material and 100% recyclable).
		Corrugated cardboard	Durable, recyclable, particular shapes to ease products' fitting (products that do not fit into the conventional packaging boxes), secure delivery, easy return.
		Corrugated packaging with peel-and-seal tape top and bottom	Reduces packing time (quick to assemble, easy to close), enhanced security during transit (protection against tampering), good surface for attaching labels, easy to use on roller conveyors, increased stability when stacking on pallets, less material.
		Corrugated board and sack kraft packaging	Safe delivery, product integrity throughout the journey, marketing up to the delivery (quality and presentation of the packaging), customized, guarantee standardization.
		Corrugated cardboard and starch-based adhesive	Eco-friendly
		Corrugated carton	Sustainable, easy to open, damage prevention/product protection International Safe Transit Association (ISTA) tests, material weight and volume reduction.
		Paper-based packaging	Sustainable, void fill, minimize and prevent product damage, easy to open, meet ISTA standards.



# 9 COMPANIES with packaging developed specifically for ecommerce



# Case studies



# LivingPackets



LivingPackets was founded in 2016 focusing on a sustainable solution for the growing waste from ecommerce. Their product, "The Box," is made with a material commonly used in the automotive sector that has been applied to a new packaging design. The company has locations in France and Germany, between 51 and 200 employees, and estimated revenue of \$32.9 million per year.

The startup aims to replace the common cardboard box with an alternative that could possibly become the building block of a new circular economy.

They launched a crowdfunding campaign in 2020 that raised around €6 million, with the objective of financing the production cost.



## Main (industry) focus

Ecommerce



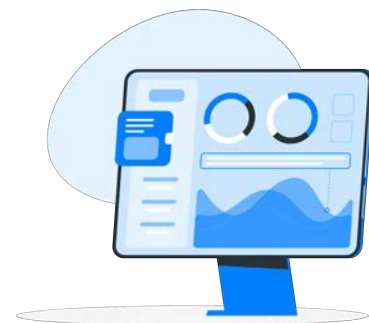
## Estimated revenue

\$32.9 million



## Founded

2016



**Website:** [www.livingpackets.com/](http://www.livingpackets.com/)  
**Contact:** [contact@livingpackets.com](mailto:contact@livingpackets.com)

**HQ:** Nantes, France  
**Company size:** 51-200 employees

# LivingPackets

## CASE STUDY



**Product name:** The Box

**Material:** The case of the product is made from expanded polypropylene (EPP).

**Is it a new packaging solution using a common material or a new packaging material developed specifically for ecommerce applications?** Material commonly used in the automotive sector, applied to a new packaging design.

**Do they claim that the packaging was designed with ecommerce specifically in mind?** Packaging developed for ecommerce. “We want to eliminate all the waste packaging generated by millions of daily ecommerce deliveries in the world.”

**What are the unmet needs that the company had in mind when designing the packaging?** Optimize all logistics processes: Reusable, durable, secure (digitally locked and monitored), trackable, easy to pack.

**Does the company mention sustainability as a key aspect?** Yes, it is recyclable and reusable. Reusing The Box around six times makes it sustainable in comparison to corrugated options. “THE BOX is made of extremely durable material. It is infinitely recyclable and can last up to 1000 trips before it needs reconditioning.”



**Figure.** The Box pictured with standard cardboard boxes on a conveyor belt. Source: LivingPackets.

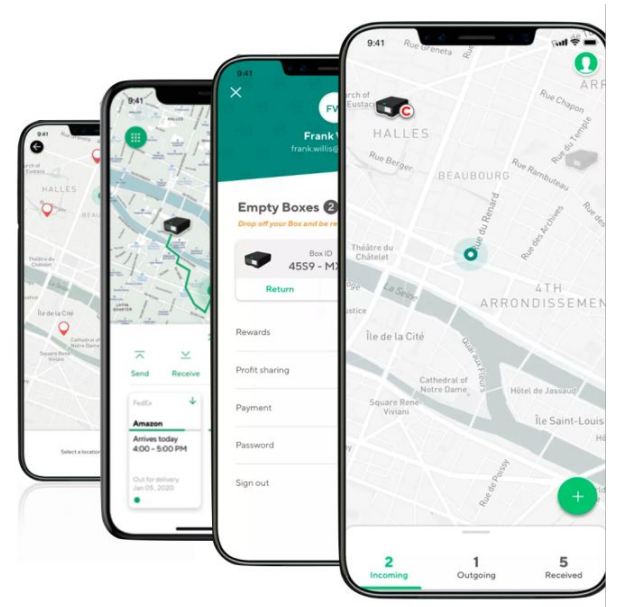
# LivingPackets

## ADDITIONAL INFORMATION

The product was developed to be compatible with the existing logistics infrastructure, but the business model is different from that of common ecommerce packaging. The client is charged for the use, in what is called “packaging as a service.” A mobile application lets the user track and control the package in real time, allowing the delivery address to be changed, if necessary, and immediately updated on the box’s display.

In addition, the product is made of materials that can be reused in the manufacture of its replacement, in case of damage, and the box can be folded when not in use to reduce the space used during storage.

The company has over 35 patents for The Box, some granted, some pending. They’ve run successful pilots with major partners such as Orange, Cdiscount, and Chronopost. The Box has industry interest and was named “the product with the greatest potential to change the world” at CES 2020.



**Figure.** Service includes an app to track the location and status of each box. Source: LivingPackets.

1. <https://livingpackets.com/>
2. <https://www.linkedin.com/company/livingpackets/>
3. [https://www.linkedin.com/posts/livingpackets\\_thefutureofpackaging-ecommerce-logistic-activity-6814160576047001600-xi9e/](https://www.linkedin.com/posts/livingpackets_thefutureofpackaging-ecommerce-logistic-activity-6814160576047001600-xi9e/)
4. <https://techcrunch.com/2020/08/07/livingpackets-hopes-to-nurture-a-circular-economy-with-its-smart-parcels/>

# Conformer



Conformer Products, Inc. is focused on small packaging for shipping articles under 5/8" thick, 13 ounces, 4" x 6" or flexible, and under \$15. The company's portfolio includes presentation folders, corrugated mailers, paperboard mailers, and envelopes. Conformer holds almost 15 patents and has additional patents pending. They operate in the United States and Canada.



## Main (industry) focus

Ecommerce packaging for clothing, technology, supplements and health, personal care, beauty supplies, home supplies



## Estimated revenue

\$986 thousand



## Founded

2003



**Website:** <https://conformer.com/>  
**Contact:** [support@conformer.com](mailto:support@conformer.com)

**HQ:** Port Washington, United States  
**Company size:** 2-10 employees

# Conformer

## CASE STUDY



**Product names:** Conformer Products, Best Mailer, Conformer Folder

**Material:** Common material

**Is it a new packaging solution using a common material or a new packaging material developed specifically for ecommerce applications?** Paperboard. Innovation is on the patented design.

**Do they claim that the packaging was designed with ecommerce specifically in mind?** Yes, packaging was developed for ecommerce. Packaging is specifically designed for shipping small merchandise as USPS Automated Flats.

**What are the unmet needs that the company had in mind when designing the packaging?** Custom-made, durable, no assembly required, self-sealing, ship for less than a box, expand up to 2" and stores flatter than a bubble mailer (saves up to 75% on storage space).

**Does the company mention sustainability as a key aspect?** Mailers are made from 100% recycled material and are 100% recyclable. FSC certified papers.



**Figure.** Best Mailer (on the left) is 3 times smaller than bubble mailers (on the right). Source: Conformer.

# Conformer

## ADDITIONAL INFORMATION



Conformer claims that their mailer can be packed, sealed, and ready to be shipped in 23 seconds, less than one-third of the time it takes to pack a cardboard box.

Their mailers range in size from extra small to extra large, and they also offer a trial kit with a set of 10 mailers as a sample. It could also be customizable with client's logo and branding.

Compared to bubble and poly mailers, paperboard mailers such as the Best Mailer are rigid and keep fragile items flat during the shipping process.

Shipping Mailer Features	Poly Mailer	Bubble Mailer	Paperboard Mailer
Pros	Light-weight, moisture resistant, more flexible, low cost	Lined with bubble wrap for extra protection	Sturdy, compact, stores flat and lowers fulfillment costs, customizable design
Cons	Supplemental padding may be needed, can be flimsy or easily pierced, no protection for fragile items	Bulkier, pricier, can easily bend so it doesn't keep items flat in the package	Not waterproof. Not well suited for goods over 2" thick.
Eco-attributes	Petroleum based. If you leave paper labels on poly mailers, they won't be recycled	Unless you peel the plastic lining out of the packaging, they are not recyclable	100% recyclable materials
Good for	Soft, non-fragile items like tshirts or small garments	Bulkier items like textbooks or candles	Items with tons of moving parts like jewelry, electronics, health and wellness products

Table. Shipping mailer options. Source: Conformer.

1. <https://conformer.com/>
2. <https://patents.justia.com/assignee/conformer-products-inc>
3. <https://bestmailer.conformer.com/>
4. <https://www.linkedin.com/company/conformer-products-inc./about/>
5. <https://www.datanyze.com/companies/conformer-expansion-products/19383962>



# Rudholm Group



The Rudholm Group is a global leader founded in 1951 that produces garment accessories, digital solutions, and logistical services for the textile industry. The company works with their clients across the production process – from design to distribution. Its goal is to minimize the impacts on the environment with sustainable packaging. It has locations in Bangladesh, China, Denmark, Germany, Hong Kong, India, Italy, Pakistan, Poland, Spain, Sri Lanka, Sweden, Turkey, Ukraine, UK, USA, and Vietnam, with 501-1000 employees, and revenue was \$41.16 million in 2020.



## Main (industry) focus

Clothing and accessories



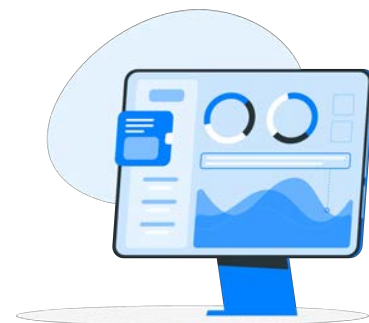
## Estimated revenue

\$41.16 million



## Founded

1951



**Website:** <https://rudholmgroup.com>  
**Contact:** [info@rudholm-hk.se](mailto:info@rudholm-hk.se)

**HQ:** Borås, Sweden  
**Company size:** 501-1000 employees

# Rudholm Group

## CASE STUDY



**Product name:** Functionate ecommerce collection

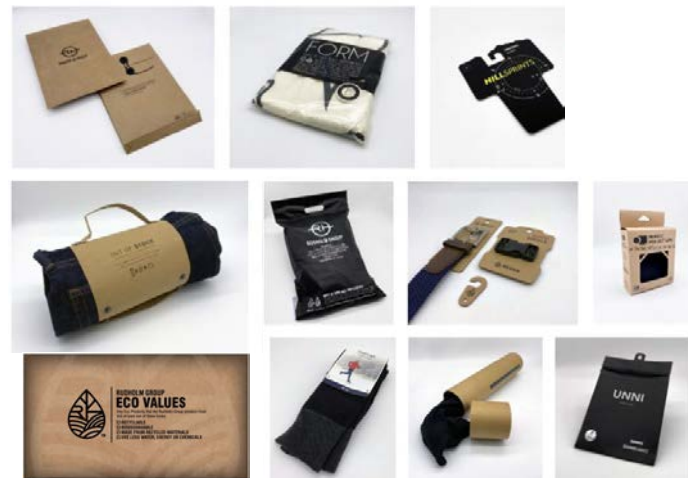
**Material:** 100% kraft/paper/card, recycled plastic, or LDPE poly bags

**Is it a new packaging solution using a common material or a new packaging material developed specifically for ecommerce applications?** It is a common material applied to various models of packaging design.

**Do they claim that the packaging was designed with ecommerce specifically in mind?** Packaging developed for ecommerce as mentioned: "The Functionate ecommerce collection is packaging with high levels of durability and a smart solution for easier shipping and returns."

**What are the unmet needs that the company had in mind when designing the packaging?** Durability, easy to pack, easier shipping and returns, eco-friendly (recycled material and 100% recyclable).

**Does the company mention sustainability as a key aspect?** Yes. FSC paper, biodegradable, compostable, recycled plastic. Their biodegradable plastic solution has shown biodegradation after 45 days under ASTM D5511 testing.



**Figure.** Functionate ecommerce packaging for clothes and accessories.

# Rudholm Group

## ADDITIONAL INFORMATION

The Rudholm group follows the trend of the three Rs: reduce, reuse, and recycle, thus aiming at a more durable packaging solution using a simplified material so it can be recycled later. The packaging is made with 100% recyclable material.



**Figure.** Design from Rudholm Group for ecommerce packaging.

1. <https://rudholmgroup.com/packaging/>
2. [https://www.linkedin.com/posts/rudholmgroup\\_label-transparency-sustainable-activity-6834114431945854977-FSrX](https://www.linkedin.com/posts/rudholmgroup_label-transparency-sustainable-activity-6834114431945854977-FSrX)
3. <https://rudholmgroup.com/>
4. <https://www.linkedin.com/company/rudholmgroup/about/>
5. <https://rudholmgroup.com/packaging/>
6. [https://www.dnb.com/business-directory/company-profiles.rudholm\\_group\\_holding\\_ab.aae43ce3112f7e3748e038692fec671e.html](https://www.dnb.com/business-directory/company-profiles.rudholm_group_holding_ab.aae43ce3112f7e3748e038692fec671e.html)

# Diamond Box



Diamond Box Limited, founded in 2007, is a corrugated packaging manufacturer. Its focus is on the easy process of packing and sealing with safe shipping using a self-sealing strip. The company has locations in the United Kingdom, with 51-200 employees, and revenue was \$40.24 million in 2020.

Diamond Box aims to impact the consumer from the moment the product is delivered with its packaging. This is in line with what each brand requests. Therefore, they use technologies that enhance the design with durability, so that the product is delivered intact, as well as increasing sustainability, as it is made of corrugated cardboard.



## Main (industry) focus

Food (fresh and frozen) & beverages, automotive, chemicals, electronics, flowers, household cleaning, furniture, health & beauty, industrial products, pet food, pharmaceuticals, rubber & plastics, stone, clay & glass, tobacco



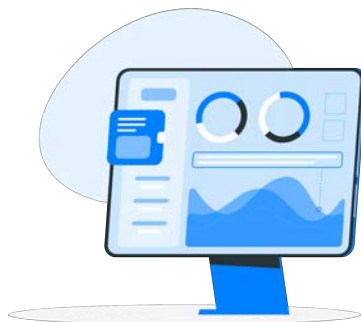
## Estimated revenue

\$40.24 million



## Founded

2007



**Website:** <http://www.diamond-box.co.uk/>  
**Contact:** [sales@diamond-box.co.uk](mailto:sales@diamond-box.co.uk)

**HQ:** West Bromwich, United Kingdom  
**Company size:** 51-200 employees

# Diamond Box

## CASE STUDY



**Product name:** Diamond Box durable ecommerce packaging

**Material:** Corrugated cardboard

**Is it a new packaging solution using a common material or a new packaging material developed specifically for ecommerce applications?** It was developed using a common material.

**Do they claim that the packaging was designed with ecommerce specifically in mind?** Packaging developed for ecommerce. As mentioned by Diamond Box: "Sustainable packaging for the retail and ecommerce markets."

**What are the unmet needs that the company had in mind when designing the packaging?** The aim of the packaging was to be durable, recyclable, have particular shapes to ease products' fitting (products that do not fit into the conventional packaging boxes), secure delivery, easy return.

**Does the company mention sustainability as a key aspect?** Yes, the packaging is made of corrugated cardboard, which means it is 100% recyclable.



**Figure.** Diamond Box design with no adhesive tape required.

# Diamond Box

## ADDITIONAL INFORMATION



Diamond Box designs are made by 3D CAD experts, which allows for previewing of packaging shapes, sizes, and styles. IterumFIVE technology is used to create designs with two colors on the outside of the package and up to three on the inside, which improves brand messaging. Another method used to enhance branding and customization is their die-cut technology.

Diamond Box considered the expenses and disposal included when there is breakage of products (transport damage) due to packaging. Therefore, they aim for packaging of good quality for protecting the product as well as being durable and recyclable.



**Figure.** Different models and types of Diamond Box.

1. <https://www.diamond-box.co.uk/eliminate-product-damage-during-transit-by-switching-to-our-durable-ecommerce-packaging/>
2. <https://www.diamond-box.co.uk/>
3. <https://www.linkedin.com/company/diamond-box/about/>
4. [https://www.dnb.com/business-directory/company-profiles/diamond\\_box\\_limited.99c3f41f8dcf2f74aa12fb0107e4dfed.html](https://www.dnb.com/business-directory/company-profiles/diamond_box_limited.99c3f41f8dcf2f74aa12fb0107e4dfed.html)
5. <https://www.diamond-box.co.uk/sectors/>

# Weedon Group

Weedon Packaging Solutions Centre (PSC), a Weedon Group company, is a corrugated packaging manufacturer focused on printed packaging for the retail market. It has locations in the UK with 201-500 employees, and revenue was \$41.16 million in 2020.

The packaging product is a robust, easy-to-assemble box with a compact shape and neat design that provides security during transport.



## Main (industry) focus

Food & beverages, consumer goods, industrial, ecommerce, trade



## Estimated revenue

\$41.16 million



## Founded

1975



**Website:** <https://weedongroup.com/>  
**Contact:** [contact@weedongroup.com](mailto:contact@weedongroup.com)

**HQ:** Hednesford, England  
**Company size:** 201-500 employees

# Weedon Group

## CASE STUDY



**Product name:** “Dave” packaging solution

**Material:** Corrugated packaging with peel-and-seal tape top and bottom

**Is it a new packaging solution using a common material or a new packaging material developed specifically for ecommerce applications?** It was developed using a common material.

**Do they claim that the packaging was designed with ecommerce specifically in mind?** Packaging developed for ecommerce: “Manufacturer of corrugated packaging and specialist ecommerce packaging.”

**What are the unmet needs that the company had in mind when designing the packaging?** Reduces packing time (quick to assemble, easy to close), enhanced security during transit (protection against tampering), good surface for attaching labels, easy to use on roller conveyors, increased stability when stacking on pallets, less material, and cheaper to manufacture.

**Does the company mention sustainability as a key aspect?** They offer a range of 100% recyclable corrugated packaging products.



**Figure.** “Dave” packaging for ecommerce with peel-and-seal tape top and bottom.



# Weedon Group

## ADDITIONAL INFORMATION



Its design was developed to be quick to assemble and easy to close using peel-and-seal adhesive tape at the top and bottom. Avoiding gaps due to this sealing brings greater security against the adulteration of the products. Due to the flat design at the bottom and top, the labels are more compact, improving stability when stacking on pallets.

The Weedon company affirms the use of less corrugated cardboard compared to traditional packaging due to Dave's design, making it cheaper to manufacture.



**Figure.** Dave's design for different products - flat and tape to seal.

1. <https://packagingeurope.com/new-ecommerce-pack-from-weedon-set-sights-on-improved-security/>
2. <https://weedongroup.com/packaging-ecommerce.html>
3. <http://weedongroup.com/>
4. <https://www.linkedin.com/company/weedon-group/about>
5. [https://www.dnb.com/business-directory/company-profiles/weedon\\_holdings\\_limited.54852e87541cb157580acf022a340f49.html](https://www.dnb.com/business-directory/company-profiles/weedon_holdings_limited.54852e87541cb157580acf022a340f49.html)
6. <https://weedongroup.com/sectors.html>

# Klabin



Klabin is a paper and forest product company (corrugated paper and industrial sacks market, market solutions in hardwood, softwood, and fluff pulp) founded in 1899. Its goal is to provide sustainable and durable paper packaging. It has locations in Brazil, Argentina, Austria, and the United States, with more than 10,001 employees, and revenue was \$2.20 billion in 2020.

Klabin offers corrugated cardboard and sack kraft packaging in different models that is customized for small, medium, and large companies.



## Main (industry) focus

Food & beverages, packaging accessories, transport & mail, pet food, stationery, toys



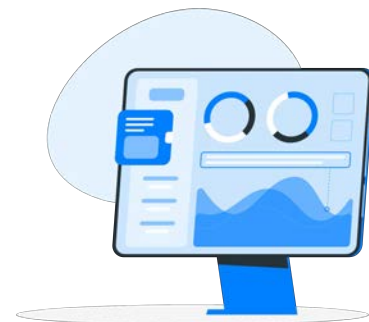
## Estimated revenue

\$2.20 billion



## Founded

1899



**Website:** <https://klabin.com.br/>  
**Contact:** +55 (11) 3046-5800

**HQ:** São Paulo, Brazil  
**Company size:** +10,001 employees

# Klabin

## CASE STUDY



**Product name:** e-klabin.

**Material:** Corrugated board and sack kraft paper

**Is it a new packaging solution using a common material or a new packaging material developed specifically for ecommerce applications?** It was developed using common materials.

**Do they claim that the packaging was designed with ecommerce specifically in mind?** Packaging developed for ecommerce. “The company announced a new strategy for this segment...one will serve traditional brands that want to expand online sales, another will serve marketplaces, and the third will be aimed at small and medium-sized customers.”

**What are the unmet needs that the company had in mind when designing the packaging?** Safe delivery, product integrity throughout the journey, marketing up to the delivery (quality and presentation of the packaging), customized, guaranteed standardization.

**Does the company mention sustainability as a key aspect?** Yes, it is sustainable, from renewable sources, 100% recyclable, and biodegradable.



Figure. e-klabin packaging. Source: Klabin.

Klabin has a sustainable model for ecommerce that is more versatile due to quick assembly, partitions, and tampering security. By obtaining raw materials from renewable resources, it is able to offer resistant, recyclable, and biodegradable solutions. Klabin produces and supplies three types of pulp: hardwood fiber - eucalyptus, long fiber - pine, and fluff cellulose. The pulp comes from 100% planted forests with sustainability and safety certificates that evaluate the wood to the final product.

Corrugated cardboard and paper are produced from short- and long-fiber pulp.

Recycled materials are recycled papers that offer uniform grammage, low impurities, and balanced water absorption, as well as cover papers that offer a clean, even surface for better print quality. These are recommended for external and internal lids for corrugated cardboard boxes.



**Figure.** Kraft liner paper made from a mix of virgin pine plus eucalyptus fiber and recycled paper. Source: Klabin.

1. <https://klabin.com.br/negocios-e-produtos/embalagens>
2. <https://ecommerce.klabin.com.br/>
3. <https://klabin.com.br/nossa-essencia/sobre-a-klabin>
4. <https://www.linkedin.com/company/klabin/about/>
5. [https://www.dnb.com/business-directory/company-profiles/klabin\\_s-a.4cdace44b680d18a416b5655ffd86d4d7.html](https://www.dnb.com/business-directory/company-profiles/klabin_s-a.4cdace44b680d18a416b5655ffd86d4d7.html)
6. <https://klabin.com.br/negocios-e-produto/embalagens/solu%C3%A7%C3%A3o-por-negocio>

# EcoEnclose



EcoEnclose, founded in 2015, is a company that provides ecological and reliable packaging solutions. It provides shipping supplies with recycled materials – as recycled as possible – with a vision of using circular economy and regenerative materials. It has locations in the United States, with 51-200 employees and estimated revenue of \$14.81 million a year.



## Main (industry) focus

Ecommerce



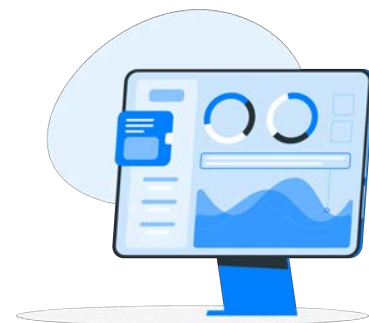
## Estimated revenue

\$14.81 million



## Founded

2015



**Website:** <https://www.ecoenclose.com>  
**Contact:** [hello@ecoenclose.com](mailto:hello@ecoenclose.com)

**HQ:** Louisville, United States  
**Company size:** 51-200 employees

# EcoEnclose

## CASE STUDY



**Product name:** Not a specific product

**Material:** Shipping boxes are made of corrugated cardboard. Corrugate, which is made of two sheets of liner board and corrugated paper or fluting in the middle, is formed with starch-based adhesive.

**Is it a new packaging solution using a common material or a new packaging material developed specifically for ecommerce applications?** It was developed using a common material.

**Do they claim that the packaging was designed with ecommerce specifically in mind?** Packaging developed for ecommerce. "Bringing innovation and eco-solutions to shipping supplies."

**What are the unmet needs that the company had in mind when designing the packaging?** To develop an eco-friendly packaging solution for ecommerce in general.

**Does the company mention sustainability as a key aspect?** Yes, it provides eco-friendly options including 100% recycled, compostable, and oxo-biodegradable materials. "Constantly increasing the recycled content...promoting high rates of recycling, and encouraging reuse whenever possible."



Figure. Products for ecommerce from Ecoenclose. Source: Ecoenclose

# EcoEnclose

## ADDITIONAL INFORMATION



EcoEnclose cares about shipping packaging and the connection with the consumers.

A study showed that 48% of consumers considered the better the packaging, the better the product. In addition, 52% of consumers buy from companies that have “thoughtful packaging,” and over 40% say this influences them to share the product on social media.

EcoEnclose shows that some factors that consumers regard as important are the delivery of products in quality conditions, custom design, the impact of packaging on the environment, and sustainability. This awareness represents 75% of consumers who emphasize receiving their products in ecological packaging. The concern about the packaging being reused and biodegradable is important to 50% of consumers, and 47% consider it important not to have excess packaging.



**Figure.** 100% recycled poly mailers. Source: Ecoenclose.

1. <https://www.ecoenclose.com/our-story/>
2. [https://store-rd0ndag3a6.mybigcommerce.com/content/vsfiles/downloadables/EcoEnclose\\_Bill\\_Of\\_Materials\\_3.19.2021.pdf](https://store-rd0ndag3a6.mybigcommerce.com/content/vsfiles/downloadables/EcoEnclose_Bill_Of_Materials_3.19.2021.pdf)
3. <https://www.linkedin.com/pulse/eco-friendly-packaging-stronger-brand-sales-saloni-doshi/>
4. <https://www.ecoenclose.com/compostable-versus-recyclable-mailers->
5. <https://www.ecoenclose.com/our-vision>
6. <https://www.linkedin.com/company/ecoenclose/about/>
7. [https://www.dnb.com/business-directory/company-profiles/the\\_eco\\_solution\\_llc.73655cc7234bee6a7a0e0e34a75d408c.html](https://www.dnb.com/business-directory/company-profiles/the_eco_solution_llc.73655cc7234bee6a7a0e0e34a75d408c.html)
8. <https://www.ecoenclose.com/>

# Fuseneo



Fuseneo is a design company focusing on innovation and specializing in packaging design, graphics, and prototyping for brands. It is located in the United States. The company has been working with Amazon and other brands to help them redesign their packaging to meet Amazon's three-tiered Frustration-Free Packaging Program, with 11-50 employees and estimated revenue of \$320,926 a year.



## Main (industry) focus

Internet, consumer goods, food & beverage



## Estimated revenue

\$320,926



## Founded

n/a



**Website:** <https://www.fuseneo.com/>  
**Contact:** [studio@fuseneo.com](mailto:studio@fuseneo.com)

**HQ:** Saint Charles, United States  
**Company size:** 11-50 employees



# Fuseneo

## CASE STUDY



**Product name:** Not a specific product

**Material:** Corrugated carton

**Is it a new packaging solution using a common material or a new packaging material developed specifically for ecommerce applications?** It was developed using a common material.

**Do they claim that the packaging was designed with ecommerce specifically in mind?** Packaging developed for ecommerce. "Redesigning ecommerce packaging as a short-, mid-, and long-term approach."

**What are the unmet needs that the company had in mind when designing the packaging?** Sustainable, easy-to-open, damage prevention/product protection International Safe Transit Association (ISTA) tests, material weight reduction, and volume reduction.

**Does the company mention sustainability as a key aspect?** Yes, the product is recyclable.



Figure. Product examples from Fuseneo for ecommerce.

In September 2018, Amazon launched its Vendor Incentive Program known as the Frustration-Free Packaging (FFP) Program. The goal was to encourage brands to obtain easy-to-open, ready-to-ship recyclable packaging of products for customers at no additional cost from Amazon boxes.

Fuseneo collaborates in redesigning packaging with some brands with a focus on FFP and International Safe Transit Association (ISTA) tests.

Its focus is on reducing transport damage and the inefficiency of the system as a whole. In some cases, companies considered the expenses of damaged products and the return of a new product without damage to the consumer, which incurs an additional cost in addition to not being sustainable. In other words, the shipment is multiplied and generates extra waste that can be avoided with better quality packaging or better design.

Fuseneo aims to help brands create an efficient design with a better experience for the end customer and enhanced sustainability.

1. <https://www.fuseneo.com/case-studies/amazon-batteries-cables>
2. <https://www.packworld.com/issues/ecommerce/article/21283986/lenox-optimizes-wine-glass-packaging-for-amazon-shipping>
3. <https://www.packworld.com/issues/ecommerce/article/13376482/amazons-new-sustainable-packaging-program-puts-the-customer-first>
4. <https://www.fuseneo.com/>
5. <https://www.linkedin.com/company/fuseneo-inc-/about/>
6. <https://www.allbiz.com/business/fuseneo-815-981-4164>
7. <https://www.fuseneo.com/>



Figure. Wine glass packaging optimized for Amazon shipping with FFP.

# Smurfit Kappa



Smurfit Kappa was founded in 2005 and is a paper-based packaging solutions manufacturer. It has 23 locations in Europe and 13 in America, with more than 10,001 employees, and revenue was \$9.87 billion in 2020.



## Main (industry) focus

Food & beverages, pet food, electronics, fashion clothing, flower packaging, furniture, household cleaning, tobacco, health & beauty, packaging & paper, pharmaceuticals, chemicals, industrial, rubber & plastics, stone, clay & glass, automotive



## Estimated revenue

\$9.87 billion



## Founded

2005



**Website:** <https://www.smurfitkappa.com/>  
**Contact:** +353 1 409 0000

**HQ:** Dublin, Ireland  
**Company size:** +10,001 employees

# Smurfit Kappa

## CASE STUDY



**Product name:** Not a specific product

**Material:** Paper-based packaging

**Is it a new packaging solution using a common material or a new packaging material developed specifically for ecommerce applications?** It was developed using a common material.

**Do they claim that the packaging was designed with ecommerce specifically in mind?** Packaging developed for ecommerce. “Smurfit Kappa adds that its new portfolio is aimed at addressing key challenges for the ecommerce supply chain.”

**What are the unmet needs that the company had in mind when designing the packaging?** Sustainable, void fill, minimize and prevent product damage, easy to open, meet ISTA standards.

**Does the company mention sustainability as a key aspect?** Yes, the packaging products are 100% renewable, recyclable and biodegradable.



**Figure.** E-bottle packaging design using paper-based material from Smurfit Kappa.

# Smurfit Kappa

## ADDITIONAL INFORMATION



Flexible and easy-to-package solutions that eliminate any risk of damage to the product in transit and guarantee a product undamaged.

Ecommerce packaging is now a marketing tool in its own right, embodying the brand. As such, Kappa helps their customers stand out in a crowded marketplace and deliver memorable experiences to their customers.

The innovation approach is fully market-driven and focused on solving challenges. Whether through product development, process improvement, or optimizing supply chain efficiency, the innovation process starts with understanding the market.

International Safe Transit Association tests.



**Figure.** Sustainable packaging with different designs and thermobox.

1. <https://www.linkedin.com/company/smurfit-kappa-group/about/>
2. <https://www.smurfitkappa.com/about>
3. [https://packagingeurope.com/smurfit-kappa-expands-ecommerce-solutions/?utm\\_source=WeeklyNewsletter&utm\\_medium=News](https://packagingeurope.com/smurfit-kappa-expands-ecommerce-solutions/?utm_source=WeeklyNewsletter&utm_medium=News)
4. [https://www.smurfitkappa.com/-/m/files/publications---global/sustainability-reports/smurfit\\_kappa\\_sustainable\\_development\\_report\\_2019.pdf?ev=9f2e44ab465e44b9b1cc82938e945077](https://www.smurfitkappa.com/-/m/files/publications---global/sustainability-reports/smurfit_kappa_sustainable_development_report_2019.pdf?ev=9f2e44ab465e44b9b1cc82938e945077)
5. <https://www.smurfitkappa.com/>
6. <https://www.linkedin.com/company/smurfit-kappa-group/about/>
7. <https://www.smurfitkappa.com/sectors>

# Expert Interview



# Expert Interview



## Bob Makofsky

Co-Founder and General Manager,  
Conformer Products, Inc.

Bob Makofsky is an expert in packaging with almost two decades of experience, including an ecommerce specialty for the last five years. He has deep knowledge of USPS rules and rates, workflow optimization, and shipping cost reduction. Recently, Bob has developed smart packaging for ecommerce companies shipping small goods that cuts postage in half by shipping as USPS Flats, instead of Parcels. The company has developed packaging to ship all sorts of small items including personal grooming, beauty, tech devices, fashion accessories, and even home cleaning products. Bob has published articles in DM News, Parcel, Mail, Printing News, American Printer, and Multi-Channel Merchant and has been a speaker at Parcel Forum and the New York Postal Customer Council. Before working with Conformer Products, Bob was a Business Development Manager for a small tech startup.

## Generally speaking, is the packaging used in ecommerce developed specifically for this application? Is there a trend to start designing specifically for ecommerce applications?

If we're talking primary packaging, most companies take the exact same unit that would be on a retail display and put it in a package, and ship it via ecommerce instead of changing the packaging.

Part of it is because a lot of merchandise is shipped through third parties, the fulfillment is done through a third party, or the warehouse that holds the inventory is shipping to retail stores and they're also shipping the ecommerce orders. Brands often simplify their packaging and just have one primary package that works for everything.

We try to sell people on creating ecommerce-specific packaging all the time. If we can do a custom outer mailer piece, they don't need to include as much primary packaging around the merchandise. I don't see a lot of it happening.

What we often see is that this falls into the department of the buyer; and the buyer is very focused on price, and they don't always look at the larger picture of all costs that go into the fulfillment and shipping experience.

The ecommerce part is, surprisingly, an afterthought in most cases. It is a bigger area for opportunity.



**Brands often simplify their packaging and just have one primary package that works for everything.**





## What new developments focused on materials for ecommerce packaging has the pandemic brought?

I don't think it's so much considering the pandemic, but the big one is plastic-free packaging. All the major sellers are pushing that. They want that in the outer shipping package and want it in the primary packaging as well.

One spot where I think you still see it is if you buy multiple pieces of clothing. Sellers are still going to put each piece in a plastic bag, and then each of those plastic bags go in a carton. You're going to see those plastic bags disappearing over the next two years, hopefully, because it's wasteful, it's unnecessary, and in almost all cases it's not recycled.

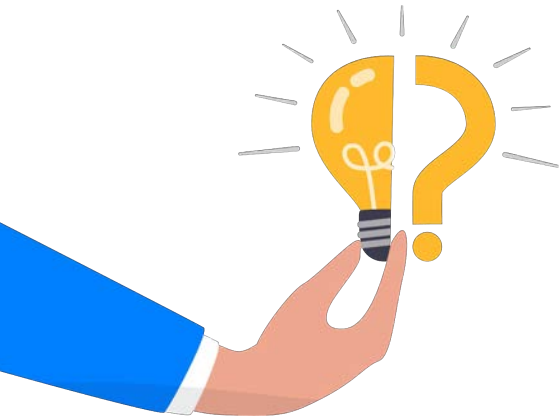
Customers want 100% paper-based packaging. We should be using a whole lot more paper. It's renewable. Most packaging is not 100% recycled content. Recycled content paperboard is typically too soft a substrate for this application. Most paper-based packaging is either a blend of virgin and recycled paper, or all virgin paper.



Customers want 100% paper-based packaging.



# How do the following packaging innovations relate to materials and ecommerce specifically?



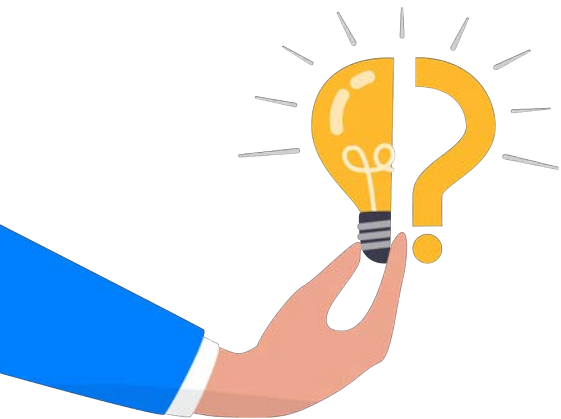
## a. Lighter durable packaging

There's a trend for smaller packaging. First, it's smaller, and then, secondarily, lighter. Lighter packaging saves money for the buyer because they're buying less paper content. If they can make the packaging of thinner paper, it costs less for them.

The shipping cost is far greater than the materials cost. All of the major carriers in the US create pricing structures that primarily drive the price down for the size of the package. Then, if your package is under 1 pound, the price per weight becomes more important. Brands are pushing for lighter- and lighter-weight materials because it saves money on postage.

Packaging specifically designed to fit contents is more durable. There are a lot of silly designs out there that don't really hold up very well or are expensive to manufacture. **There are smarter ways to design packaging that won't break down. One of the ways is by creating packaging that's fitted to what you're shipping so that you don't have a lot of empty space inside the packaging. That has been a big trend over the past four years.** When you're shipping a small piece of merchandise inside a much larger package, that's one of the easiest ways for packages to break down. Oversized packaging is happening less and less, and that's being driven by the rates of carriers.

# How do the following packaging innovations relate to materials and ecommerce specifically?



## b. Improved security

When most people are talking about security these days, it's about merchandise being stolen from people's doorsteps. It's not packages being opened in the mail stream and having merchandise taken out of packages. The brands can't really do very much about theft off a doorstep.

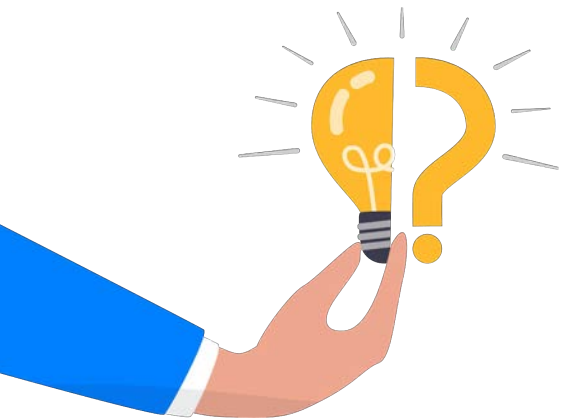
Certainly, with COVID, we've seen a lot of curbside pickups where you can order your merchandise online and then drive up to the store and pick it up. That will get rid of some of the different door thefts. In urban environments, it's a real challenge.

## c. Ease of assembly

It's certainly **important in an environment where they're fulfilling thousands of packages**. Usually, a company is shipping thousands of different items, and they're trying to fit them all into 15 different packaging options. They tend to go for oversized packages that are bulky and don't fit well but are easy to fulfill.

There are a lot of ways to do it automated with machinery, but usually that machinery is not very flexible. Usually, it's people filling packages by hand. You can get into automation if you're shipping one thing or if you're shipping just a handful of different things.

# How do the following packaging innovations relate to materials and ecommerce specifically?



## d. Materials from renewable sources

There are some corn-based plastics. They're not used very much. I'm also seeing some mushroom-based void fill. Instead of using bubble wrap or other airbags and carton-filling materials, companies can grow mushrooms. Manufacturers can grow fungus inside molds. It doesn't work great if the merchandise you're shipping is low value because it costs too much to do it. **There are limited applications for it.**

Recycled papers or blends of virgin and recycled papers are a great option for shipping packaging. **100% recycled content papers have some applications, though they are limited.** Recycled paper tends to be softer and heavier/densely packed. The mailer itself would be softer, and it could break down in the mail stream because the fibers are shorter.

## e. Improving the barrier properties of packaging paper

Some wax-based materials and coatings can go on paper and make them water- and grease-resistant. We used to have a product where it was laminated, where you're literally applying a sheet of plastic and heat sealant onto the paper, which **works great, except it makes it completely not recyclable.**

# How do the following packaging innovations relate to materials and ecommerce specifically?

## f. Experience when opening the package

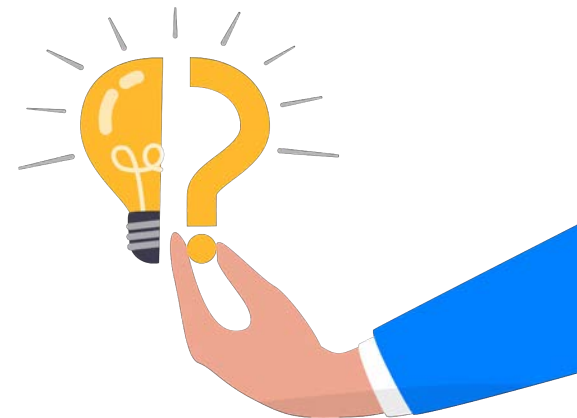
**It's huge. However, a lot of companies have really poor unboxing experience.**

If you go into a retail store in a shopping mall, inside the door there's someone that says "Hi, how are you? Can I help you?" They're sending you in the right direction, there's a scent and music is playing, and people are being cheerful. Then you go to the checkout counter and someone asks you, "Did you find everything you wanted?" They package up your stuff in tissue paper and put it in a bag and they hand you your shopping bag.

Then there's the online experience, which I find absurd in comparison. The customer orders their merchandise through the website for the same prices that they're going to get in the retail shopping experience. The company ships this out in a polybag with an invoice printed out, a receipt inside the package, and that's it. There's no experience.

A lot of companies miss the mark, where there's a disconnect between the marketing department, which wants to do all those promotion codes and talk about the next greatest product they're launching, and the buyer, who is tasked with buying the cheapest packaging possible. Those two departments don't communicate.

Most of my customers don't have retail stores. They're entirely online. So that physical experience of interacting with the merchandise, especially when they first open it, is critical.



## Which packaging developments focused specifically on this market would be needed to grow ecommerce?

It's probably reiterating what I've just said. It's the disconnection between the buyer and the marketing teams of their companies where they miss the mark, and there's too much focus on acquiring the cheapest thing possible to get the job done when it comes to ecommerce.

I think that's a real mistake. It's a mistake for social media, because when you have a cool buyer experience, that reinforces the brand. There's no worse buying experience than when you just receive a carton at home with your new merchandise in a plastic bag and there's nothing else, and it shocks me how often that's the norm, that there's no experience.

So yes, I think there's a huge amount of room for improvement with custom packaging.

“

There's room for improvement with custom packaging.

”



# About the Authors



**Marija Jović**

Technical Director

Marija is the Technical Director for PreScouter's Chemical, Materials, and Packaging verticals. She has worked across topics such as product and process improvement and development and sustainability throughout the chemicals, materials, and packaging industry. Marija completed her Master's degree in Chemical Engineering from Belgrade University and her PhD in Organometallic Chemistry and Catalysis at the Swiss Federal Institute of Technology (ETH Zurich). Prior to her PhD, Marija worked in the chemical industry on the synthesis of new textile dyes.



**Beatriz Gonçalves**

Project Architect

Beatriz is one of PreScouter's Project Architects working primarily in the Chemical, Materials, and Packaging verticals. She holds a BSc. in Materials Engineering and an MSc. in Materials Science and Engineering. Before joining PreScouter, Beatriz gained professional experience in data analysis and cost estimation. She is a certified Six Sigma Green Belt professional.



**Raquel Húngaro Costa**

Researcher

Raquel holds a BSc in Environmental Engineering and a MSc in Chemical Engineering. Her main study areas were mine tailing, physical processing, and hydrometallurgy. Raquel has gained experience during internships in areas of environmental consulting and physical-chemical analysis in the department of water and sewage. Her undergraduate research focused on in situ remediation studies using adsorption methods.

# Potential Next Steps

- ✓ PreScouter can conduct anonymous interviews with companies profiled to help you learn more about their technologies, processes, and partnership potential.
- ✓ PreScouter can identify the intellectual property position of these players and understand patent trend evolution.
- ✓ PreScouter can identify additional suppliers located in specific regions to source products and other services.



**TECHNOLOGY  
LANDSCAPING**



**TRENDS  
MAPPING**



**TECHNOLOGY  
ROADMAPPING**



**INTERVIEWING  
STARTUPS**



**IP  
LANDSCAPING**



**SUPPLIER  
OVERVIEWS**



**COMPETITIVE  
INTELLIGENCE**



**MARKET  
ANALYSIS**



**PARTNER  
OVERVIEWS**



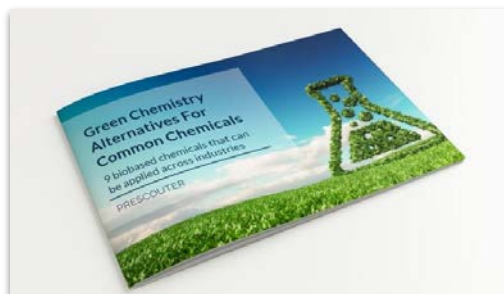
**TECHNO-ECONOMIC  
ANALYSIS**



## Other reports from PreScouter that you might like



Reusable Packaging Solutions



Green Chemistry Alternatives  
for Common Chemicals



Startups Developing  
Nanocellulose Products

Engage our network of experts and researchers on your topic.

[CONTACT US HERE](#)

# About PreScouter

## PRESCOUTER PROVIDES CUSTOMIZED RESEARCH AND ANALYSIS

PreScouter helps clients gain competitive advantage by providing customized global research. We act as an extension to your in-house research and business data teams in order to provide you with a holistic view of trends, technologies, and markets.

Our model leverages a network of 4,000+ advanced degree researchers, industrial experts, engineers and analysts across the globe to tap into information from small businesses, national labs, markets, universities, patents, startups, and entrepreneurs.

## CLIENTS RELY ON US FOR:



**Innovation Discovery:** PreScouter provides clients with a constant flow of high-value opportunities and ideas by keeping you up to date on new and emerging technologies and businesses.



**Privileged Information:** PreScouter interviews innovators to uncover emerging trends and non-public information.



**Customized Insights:** PreScouter finds and makes sense of technology and market information in order to help you make informed decisions.

**500+**  
CLIENTS  
WORLDWIDE

**5,000+**  
RESEARCH  
REPORTS CREATED

**150,000+**  
HOURS OF RESEARCH  
COMPLETED FOR CLIENTS