

Environment

Play it green



Helping to protect our environment

The world is our home and we're taking action to repair it

Human activity is changing our climate, earth, and water. People are using natural resources at a greater rate than the planet can sustain. As residents of this endangered environment, we at Cartamundi are aware of both our impact and our responsibilities to be a good corporate neighbor and avoid even more damage.

We are constantly examining the materials used in our products to work out where we can avoid unnecessary packaging; where we can reduce and optimize the use of materials, by designing our products differently; and where we can replace unsustainable materials such as single-use plastic with recyclable plastic and FSC®-approved cardboard and paper. We're also taking steps to use energy more efficiently and reduce our CO² footprint.

In this section, you'll learn about how Cartamundi is minimizing its environmental impact – both in the communities in which we live and work and in the wider world – as we work to:

- reduce our supply chain and manufacturing footprints
- find and use ecological alternatives
- cut down or eliminate the use of some materials
- promote a sustainable company culture
- encourage sustainable commuting



Reducing our supply chain footprint

Our aim is to have the **greenest possible supply chain** to deliver products of the same high quality that we've always offered.

Cartamundi has a global network of 12 production facilities. These allow us to manufacture around the world and stay as close to our customers' markets as possible.

Through this network and close-to-market strategy we reduce transport and mileage, not only for incoming goods from our suppliers, but also for the outgoing transport towards our many customers. By working closely with our customers and transport partners, we aim to always drive with full truck or container loads or to group our orders for multiple customers.

That's how we try to minimize our environmental impact. Because of this, our supply chain has a relatively small footprint compared with our

competitors. Specifically, we add less pollution and CO² to our neighboring customers' and consumers' environment.

Reducing our manufacturing footprint

Our aim is to use the **greenest possible manufacturing process** to make products of the same high quality that we've always offered.

We're taking two different approaches to make our production processes more sustainable, and be a cleaner, greener neighbor:

Energy-efficiency and renewable energy.

It goes without saying that we need energy to manufacture our products and operate our machines. Our goal is to use as little energy as possible. That's why we invest heavily in energy-efficient measures and awareness campaigns for our employees and partners. Step by step, we try to switch to renewable energy.

- Seven of our facilities have switched to LED lighting. Some of our buildings make use of residual heat, and a number of them actively consume less water than they used to.
- We regularly organize energy audits to detect energy losses in our manufacturing process. We tackle the challenges we find by setting up improvement programmes.
- Some of our production plants already make use of energy from wind, hydro, or solar generation. We intend to significantly increase this over the next five years while at the same time reducing our dependence on energy from non-sustainable sources wherever possible.

Waste management and recycling materials.

Avoiding and reducing waste is the first step towards more sustainability. Every day, Cartamundi strives to decrease industrial waste and recycle as much as possible. Our factories sort and recycle many types of material, especially paper and cardboard. We always follow national recycling policies, and we're determined to do more to encourage recycling in all our markets in the coming years. Here are a few of our current actions:

- At Cartamundi's headquarters in Turnhout, Belgium, we collect and recycle toner & ink cartridges in cooperation with Recyca (www.recyca.be). In exchange for the collection, money is directly deposited to a charity of our choice – Hannibal Vakanties, which organizes holidays for young people with disabilities.

- We don't just practice waste management within our own factories. We also assist our customers to correctly recycle our products. In Germany, for example, we have detailed recycling icons on our packaging.
- In Brazil, there's a National Solid Waste Policy (NSWP) that aims to decrease the nationally produced waste and increase sustainable waste management. Since 2017, Copag da Amazonia complies with the Brazilian waste policy. That means Copag da Amazonia compensates at least 22% of the packaging it sells. We make payments to recycling cooperatives, so they have more funds to reduce waste. In 2018 alone, Copag da Amazonia offset seven tons of plastic and 18 tons of paper and cardboard from products sold in São Paulo. In 2019, we expanded this program nationwide, significantly increasing the amount of recycled materials.



Fournier rethinks its products, processes and machines

Pressing global environmental problems? Spanish plant wants to be part of the solution

A growing need for economising, increasingly severe legislation (for example on chemicals such as volatile organic compounds (VOC)), ever-higher quality requirements... In recent years, Fournier has been strongly encouraged to change its ecological course. “It was a strong wake-up call for all our employees,” says Puy Echeverria, Procurement & Quality Manager at Naipes Heraclio Fournier S.A, Spain. “As a result, we started tinkering on three levels: products, processes and machines.”

Successful tinkering apparently, as Fournier was rewarded for their effective environmental management system with an ISO14001 certification in 2018. According to Echeverria, the start of an ambitious route to more sustainability: “This achievement was like a catalyst to do even better in the future. For instance, we are constantly looking for ways to reduce, replace or simply avoid certain, often harmful, materials.”

“ We are planning to replace our older printing press with a new one, equipped with an eco-friendly varnish unit.

Puy Echeverria, Procurement & Quality Manager, Naipes Heraclio Fournier S.A.

Better products, new machinery and less processes

'We Care' — taking care of our planet — is one of our five global values at Cartamundi and we take it very seriously. How is that put into practice? That differs from country to country. "In Spain, we explored the routes for alternative eco-friendly coatings", says Echevarria. "We also invested in new sustainable machinery. Processes were closely examined. Result of this exercise? Some of the processes are not even used anymore because they turned out to be unnecessary. That way, we were able to eliminate a source of contamination, which led to a considerable reduction in the consumption of solvents containing VOCs. Also, with improved water-based varnish and UV varnish we were able to make a noticeable difference."

Measuring and sharing results

Every year Fournier's progress is measured in detail and shared with the authorities. "So that everyone knows where we stand," says Echavarria. "Meanwhile, we continue caring about the ecological impact of our factory and would like to keep improving our products, processes and machines in the future. For example, we are planning to replace our older printing press with a new one, equipped with an eco-friendly varnish unit. The investment will allow us to stop using nitrocellulose varnish and use more sustainable materials instead."

ISO 14001: global standard for environmental management

ISO 14001 specifies the requirements of an environmental management system that an organisation can use to improve its environmental performance. To obtain this certification, Fournier had to:

- identify and monitor the environmental impact of its activities, products and services.
- continuously improve its environmental management.
- implement a systematic approach to setting environmental objectives, achieving them and communicating them when they are met.



Finding and using ecological alternatives

Our aim is to **use sustainable materials** to deliver the same high-quality products we have always offered.

We don't want to create unrecyclable waste that our neighbors have to deal with. So, to make our products greener, we evaluate the sustainability of all materials used and, if possible, replace non-sustainable materials with eco-friendly alternatives.

Several of our facilities already use environmentally friendly inks and varnishes, as well as sustainable Forest Stewardship Council®(FSC®)-approved paper

and cardboard. We're gradually replacing traditional materials with eco-friendly ones, but there's still some work ahead. [Read about our progress with Bicycle playing cards.](#)

It's not just our own concerns that drive us to change the way we make products. Increasing numbers of business customers (game publishers and retailers) are encouraging us to make our products more sustainable, as are the younger generations of consumers of our card and board games.

In our switch to greener product components, we are:

- 1) using more FSC®-certified, sustainably sourced paper and cardboard; and
- 2) using less plastic.



Sustainability is the Ace up our Sleeve

Bicycle: legendary for decades, green for the future

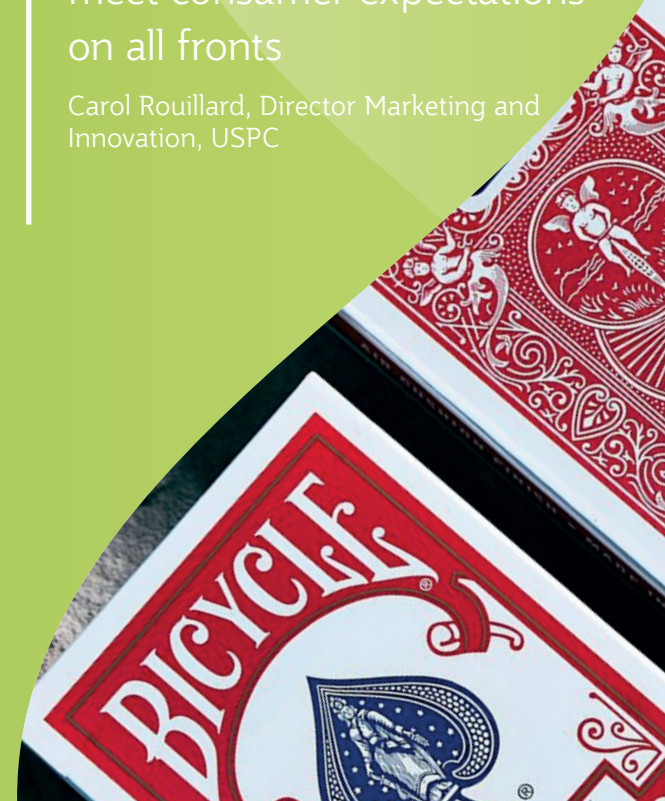
For over 100 years, Bicycle® has been one of the most trusted brands of playing cards worldwide. Loved by magicians, its cards are famous for their consistent high-quality feel and superior shuffling and playing. Bicycle® conjures up magical experiences that inspire play and an enjoyment of life. At the same time, it's in sync with the modern world and its responsibilities to the environment. "The brand manages to perfectly combine quality and sustainability", says Carol Rouillard, Director, Marketing and Innovation, at the United States Playing Cards Company (USPC).

Back in 1881, Russell, Morgan & Company began playing card production, launching a range of brands. One of these was Bicycle®, which quickly grew to become their flagship. Since then, while the manufacturer has evolved into USPC and become part of our Cartamundi Group, the Bicycle® brand remains pre-eminent.

Bicycle®'s great asset? Its Air-Cushion® Finish embossing technique. Using a unique paper stock, the technique creates pockets of air that allow the cards to glide smoothly over each other. Artisans have formulated and fine-tuned the finish through decades of R&D. Looking to perfect every aspect and detail of the cards, they developed specialized in-house raw materials, production processes and, of course, player- and user-focused refinements.

“ We have a responsibility to meet consumer expectations on all fronts

Carol Rouillard, Director Marketing and Innovation, USPC



Innovation meets sustainability

Innovation is deeply embedded in the Bicycle® brand's DNA. Born out of a desire to create something both fashionable and chic, over the past 15 years, Bicycle® has modernized to become sustainable as well.

Carol Rouillard says: "We have a responsibility to meet consumer expectations on all fronts. For example, generally speaking, GenZ consumers expect businesses to have a positive impact on society and the environment. At the same time, Millennials appreciate purpose-driven brands, with environmental responsibility being one purpose that gets a lot of attention."

Nine eco-friendly layers

"Unlike other playing card manufacturers", Carol says, "we laminate our own paper stock in house, so we can be selective about ingredients, such as adhesive and coating. This gives us an advantage over our competitors."

You can tell a good card by the number of layers it's made of. All Bicycle® cards are composed of nine layers. For each layer, Bicycle® uses sustainable components – and they're locally sourced, meaning they create a smaller carbon footprint versus imported components.

- Coating
 - Water based
 - Made in the USA
- Ink
 - Vegetable based
 - Made in the USA
- Paper Fibers
 - 100% sourced in North America from FSC®- (Forest Stewardship Council-) and SFI- (Sustainable Forestry Initiative-) certified forests
 - Proprietary to USPC
- Adhesive
 - Water soluble, starch based
 - Repulpable, helping to make cards recyclable (100% of our paper card stock scrap is recycled into household or industrial tissue and towel products)
 - Made in the USA

Strike a balance

As it's evolved into a more sustainable business, USPC has searched for a balance between quality and environmentally friendly products.

Carol says: "12 years ago, when we moved from Norwood, Ohio to our current location in Erlanger, Kentucky, we updated some equipment. Doing this opened up some options to use other types of materials such as a polymer-based adhesive for our laminated paper stock and other printing inks. For sustainability reasons, we decided against using this adhesive, knowing that it results in less flexibility in product attributes.

"The tricky part is balancing the sustainability profile with innovation that consumers demand in fit, finish and function and, of course, cost. Some of the commercially available solutions don't always have an attractive environmental profile. Right now, we make two product where the scrap is segregated because

“When evaluating new materials, their impact on the safety of our employees and the environment is just as important as the impact on product performance and cost

Carol Rouillard, Director Marketing and Innovation, USPC

it cannot be recycled. It is more work to do that, but it allows us to continue to recycle everything else. Another example is our iconic Air Cushion® finish that people love and which gives us superior performance. We create that mechanically instead of adding and using chemical components that would make our products less environmentally friendly.”

Focus on the future

"As we progress on our journey, we know our ultimate goal would be to move away from cello overwrap someday", says Carol. "We've started an innovation trajectory to investigate whether we can replace the cello used to wrap our tuck boxes with more sustainable paper-based alternatives.

"When evaluating new materials, their impact on the safety of our employees and the environment is just as important as the impact on product performance and cost."

FSC®-certified paper and cardboard

Paper and cardboard are the main materials that go into making our cards and games. The FSC®-certified variety is made from trees cut down and replanted in a responsible way. Research shows that responsible forest management leads to replanting, and forests get younger. The younger trees absorb more CO₂ from the air and, thanks to the FSC®, the forests can grow – great for the environment and for reducing greenhouse gases.

In France, where Cartamundi goes under the France Cartes name, we work with a comparable certification system called PEFC.

Why sustainable forest management works

It might come as a surprise to know that the production of paper and cardboard has actually created additional forests in Europe. Between 2005 and 2015, European forests grew by no less than 44,000 km².

Sustainable forest management ensures that harvested trees are replaced with new trees and more of them. These forests contribute to the growth in the area of Europe covered by forest. The trees capture and absorb the man-made CO₂ that's driving climate change.

And naturally, they're a habitat for animals. Paper and corrugated board bearing the FSC or PEFC logo are guaranteed to have been produced from legally harvested wood from sustainably managed forests.

Only 13% of the world's wood harvest is used to make paper and cardboard. Fuel is number one, with at least 50% of wood harvested being used for this purpose.



Full steam ahead for paper and cardboard from sustainable forests

8 of our 12 Cartamundi facilities are FSC® certified

Cards, boxes, game boards, Monopoly money, ...

The majority of our products are made from paper and cardboard. We want to reduce the negative impact of deforestation on the climate. That's why we choose FSC® materials whenever possible: paper and cardboard originating from forests that are managed responsibly.

Forests play a crucial role for the biodiversity of our planet. In addition, they remove CO2 from the atmosphere and provide a real counterbalance to climate change. Unfortunately, we lose millions of hectares of natural forest every year, partly due to clearance and deforestation.

The FSC® label ensures that harvested trees are replaced by new ones, which capture more CO2 from the air than the older specimens. "By choosing FSC®, Cartamundi contributes to fighting climate change and protects the natural habitat of animals," says Marleen De Geeter, Material Planner at Cartamundi Turnhout.

Forest Stewardship Council, protecting our forests since 1993

The Forest Stewardship Council® (FSC®) is an international non-profit organization founded by foresters, companies from the wood and paper sector, social movements and environmental organizations.

Together, they strive for responsible forest management worldwide. To this end, they manage a system of forest certification, with which they protect more than 222 million hectares of forest worldwide.

[Find out more at fsc.org](https://www.fsc.org) ▶

Annual audits keeps us focused

“At Cartamundi Turnhout we purchase paper and cardboard, all FSC®-labeled. But the FSC® logo also plays an important role in sales,” says Marleen. “An increasing number of B2B customers are consciously choosing sustainable products. Especially retailers and organizations linked to government agencies. That’s why the colleagues responsible for FSC® compliance work together closely with an international network of officially recognized FSC® auditors. They examine on an order-by-order basis whether the logo can be lawfully granted to our products.”

In addition, the FSC® organization subjects our purchasing and sales procedure to a strict examination every year. They advise adjustments if necessary.

“FSC® auditors examine on whether the FSC® logo can be granted to our products

Marleen De Geeter, Material Planner,
Cartamundi Turnhout

Sustainability transcends borders

For years now Cartamundi has been working with paper from sustainable sources. “Our department in Turnhout has been FSC®-certified since 2008. The colleagues from Altenburg, Ireland, Dallas, East Longmeadow, Brazil and India followed suit. Our French branch faithfully uses the PEFC system, a similarly recognized label in responsible forest management. In all our departments, sustainability plays an important role.”

Marleen's focus is to make all departments work together like clockwork. “Some of our games are printed in Turnhout, but later forwarded to our factory in Altenburg where they are further assembled into a board game. In those cases, we have to closely monitor the entire chain. Because it's the only way to guarantee that our products are fully FSC®-worthy.”

The FSC® policy works. For every tree that is cut down, (more) new trees are planted. As a result, European forests grew by 44,000 km² between 2005 and 2015.. A beautiful evolution that we gladly contribute to.

Plastic reduction

We are working hard to reduce single-use plastics in our products and packaging, because the material poses an urgent and global environmental problem. Waste plastic ends up in our seas and oceans, where it releases microplastics, which are harmful to humans and animals.

The demand for plastic-free products is growing, both from our business customers and from our end consumers. And to be a good neighbor who looks after their environment, we're taking action.

We are coordinating teams at all of our factories worldwide. Four teams are working together, using our engineering, supply chain, marketing and communication to reduce our use of single-use plastics: cello, shrink-wrap, flow packs/flow wrap and plastic

bags for components. In the course of 2021, we plan to gradually eliminate them from our organization.

Avoid, reduce, eliminate

We've previously mentioned the avoid, reduce, eliminate principle. Here's how it works in reducing down our use of plastic.

First, we try to avoid using this material altogether. When developing a new product, we evaluate how to make it with as little plastic as possible. An example of this is our Red Devils fan packs, a loyalty concept for supermarket chain Carrefour in Belgium. Normally, the cards would come packaged in plastic flow wrap. We simply avoided this by keeping them together with an easy-to-remove glue instead.

We're also finding ways to reduce the volume of plastic we consume. For example, at Cartamundi Turnhout, we've started employing a more stretchable plastic around pallets, reducing the use of plastic by 51%.

Finally, we try to eliminate as much single-use plastic as we can and replace it with an eco-friendly, paper-based alternative like the one described below.

Our ambition? To phase out single-use plastics as much as possible

Cartamundi opts for sustainable packaging worldwide

Every year eight million tons of discarded plastic ends up in our oceans and seas. Animals become entangled and suffocate or starve to death. Meanwhile, our once pristine waters get more polluted every day. To put an

end to such tragedies, we have a duty as a company to limit our plastic waste. That is why Cartamundi is taking steps to ban all single-use plastics from its products. Engineers in Belgium, Brazil and the United States have joined forces to find suitable and sustainable alternatives.

In true One Group, One Team fashion, three Cartamundi engineers have found each other to tackle our plastic challenges: Erik Van Genechten in Belgium, Mariana Gonçalves (Brazil) and Stefan Congram (USA). They meet each other every week – in cyberspace, of course – to share ideas, allocate tasks and discuss the progress of our plastic reduction programs.

Eco-friendly materials suitable for each of our plants

One particular challenge is to find universal alternatives for plastic, materials that could be used in any Cartamundi facility worldwide. For the engineering team, it's crucial our global clients consider us a complete

partner, one that produces cards and games in the same way, wherever the factories are situated. “That is why we test the materials at different locations. Take Brazil, for example. Our factory there is located in Manaus, right in the middle of the Amazon rainforest, where temperatures and humidity are high,” says Mariana Gonçalves.

In the USA, we find yet another focus. “We are examining how we can use sustainable alternatives for packaging game components,” says Stefan Congram. “And since we have different machines from the ones in the other Cartamundi facilities, we are investigating how our machines would handle new packaging materials.”



First step is taken: transparent paper to replace cellophane

So far, worldwide research within the Group has been successful. In 2021 Cartamundi announces it will start replacing cellophane with a paper-based see-through alternative, for the packaging of card games for some of its items.

“It took a lot of preparation,” says Erik Van Genechten. “After the tests, we needed to look for global suppliers who could provide the materials and meet our quality standards. After we found a suitable partner, our communication team started a marketing campaign to inform our customers, partners and employees.”

The first Cartamundi facility to begin using this transparent paper in production is the one in Poland.

[Read the full story ▶](#)

Paper toys bring sustainable innovation to loyalty

Other Cartamundi departments are also committed to the fight against plastic soup. Our packaging engineers in Altenburg (SAL), for example, are inventing and printing the most wonderful 3D paper toys. That way, they anticipate the increasing demand in retail for durable collector’s campaigns, helping Quick Service Restaurants and supermarkets to stop distributing plastic giveaways.

It is clear we have taken important steps. But we still have a long way to go before we reach our goal. Not all of the selected alternatives can be applied to all products and in every facility around the world. That is why we will continue to look for sustainable and strong alternatives in 2021.

Why do we think paper-based materials are the solution?

In our search for alternatives to plastic, our engineers focus primarily on paper-based materials. They do so for these reasons:

1. Paper is noticeably **more durable** than plastic over the product’s entire life cycle. Plastic only proves to be more sustainable in the production stage.
2. The recycling rates of paper and cardboard are higher than those of other materials. By producing paper-based items from materials with a single source, our products can be fully recycled. Which is an important step towards a circular economy.
3. Cartamundi favors wood or paper with an FSC® label, which guarantees **sustainable forest management**.

[Read the full story ▶](#)



There's no turning back now: ecological packaging is here to stay

Cartamundi Poland is the first of our factories to produce paperwrapped cards

Cartamundi wants to ban single-use plastics from its products. A few years ago, our engineers started looking for an alternative to cellophane for the packaging of card games. In 2021, Cartamundi introduced a paper-based see-through material, to

wrap cards that come with board games or in separate tuckboxes. The material will eventually be integrated in all of our production facilities, but the scoop is for Cartamundi Poland.

“We are definitely proud to be the first to produce glassine,” says Damian Kula, Operations Manager at Cartamundi Poland. “But it’s also very exciting, because all eyes are on us now. The other Cartamundi production facilities eagerly await our feedback.”

100% recyclable

Cartamundi engineers all over the world collaborate to find the best alternatives to single-use plastics in our production process. One of those solutions is a transparent kind of paper. Damian Kula: “Unlike cellophane, paper wrapping is 100% paper-based. Cartamundi uses FSC® materials for its games and packaging. That means that all our paper and cardboard originate from forests that are managed responsibly.”

Cartamundi Poland was involved in the project early on, as one of the first factories where the production was tested. “The production processes are very similar. We were able to continue working smoothly. We did have to look for the ideal way to store the paper wrapping, but we have now found a solution for that as well.”

“All our paper and cardboard originate from forests that are managed responsibly.

Damian Kula, Operations Manager,
Cartamundi Poland

Staged approach

In our search for ecological packaging materials, we follow the avoid-reduce-replace formula. If we can't avoid the use of packaging, we try to reduce it. And if that isn't possible either, our engineers will look for an alternative. In this way, we want to eventually ban all single-use plastics from our products.

Further down the road, our engineers will also be looking for alternatives to the cellophane we use to wrap card boxes. There are several requirements: the packaging must hold the cards together during transportation and needs to look good for the end-user.

"This shift to ecological packaging is logical and necessary," concludes Damian Kula. "Our customers demand change, which we fully support. Working together, we're looking at the next steps for more sustainable packaging options."



Paper toys: a big opportunity

An important and exciting part of our plastic reduction project is the development of paper toys.

We started making these in response to a request from QSR (Quick Service Restaurants). These chains are under a lot of pressure to remove their plastic giveaway toys for kids and are looking to offer environmentally friendly alternatives. QSR often look to Cartamundi to provide fun yet sustainable products.

So, inspired by QSR, we launched our PaperToys 2.0 project. This is a huge opportunity for Cartamundi to innovate and strengthen our position as the biggest paper toy manufacturer in the world.



Retail collector's campaigns and sustainable giveaways go hand in hand perfectly

At ASS Altenburger, ingenious paper toys come to life

A 3D tractor made out of thick cardboard, an entire farm of animals made out of glued-together die cut shapes, ... There's so much paper can do. Including: reducing the amount of plastic in the world. Quick Service Restaurants (QSRs), for example, are gradually replacing their plastic giveaways with ingenious paper toys.

Who are the masterminds who design and produce these cute ecological alternatives? Meet Sebastian Runge and Julius Muschalek, two passionate engineers at ASS Altenburger, Cartamundi's German branch.

More and more supermarkets and QSRs focus on sustainability and are looking for ecological collector's items, instead of disposable plastic toys. Cartamundi's paper toys are the ideal answer to their increasing demand.

"We prefer FSC®-certified paper," says Julius.

"In addition, we try to keep the sheet sizes of the punchboards as small as possible to limit the amount of waste. And we recommend to switch to thinner materials for boxes and punch boards, for example. This is also cheaper and thus more advantageous for the customer."

Supermarkets and QSRs can stack the punchboards neatly on top of each other. This compactness is an extra benefit because the loyalty gifts require less storage space.



More building fun, more quality time

The paper toys have another great advantage over their plastic equivalents: children often have to put the toys together themselves, which is part of the fun. They also practice their spatial understanding and hand-eye coordination. And they feed their self-confidence, because they have made it themselves.

“Children engage with the paper toys – they build something they can be proud of

Sebastian Runge, Manager Technical Product Development, ASS Altenburger

“The fun is not just in receiving the toy,” Sebastian says, “But in engaging with it and building something nice to keep or play with. Something to be proud of. For example, for a board game, we made a set of two

jungle animals that can stand on their own, but they can also be stacked on top of each other.” A promising beginning of remarkable adventures for sure.

Jungle of possibilities

Sebastian goes on to say: “Our sales colleagues from different channels regularly knock on our door requesting a new 3D design. When we’re done, we print them on paper and glue them to a thicker sheet of cardboard. Then we die cut the components so the consumer can easily punch them out and get started.”

Since 2020, Cartamundi Group has been collaborating with Dodoland, a New Zealand company. They sell 3D paper toys of wild animals and fantasy figures. In fact, Dodoland is the very first license that Cartamundi has secured in the paper toys segment.

“We will be allowed to sell Dodoland figures to companies as branded promotional gifts and to retail chains for collector’s campaigns,” says Julius.

“By using die cutting, we could easily produce toys on a large scale

Julius Muschalek,
Technical Product Development

The Dodoland collaboration also signaled the move from laser cutting corrugated cardboard to die cutting solid cardboard. “Pretty challenging. But it also opens up a lot of possibilities,” says Julius, “Thanks to die cutting, we can now produce our paper toys on a large scale.”

Game publishers and musea

Julius and Sebastian also receive questions from publishers who want to replace the plastic trays of their game boxes with a paper version. “One example is Hans Im Glück, the publisher of the game Carcassonne. They asked us to put the punching boards together with paper bands instead of traditional shrink-wrap. Fortunately, Cartamundi has a lot of experience in this area, as we choose durable paper binding as standard for our punch out cards.”

The project Sebastian and Julius are most proud of? “That would be the Brutus race car we did for the Technik Museum Sinsheim in Germany. It’s a cool replica of the race car the museum developed, on a truck chassis with an airplane engine.”

And with Brutus and its many cardboard friends, paper toys are off to a roaring start.



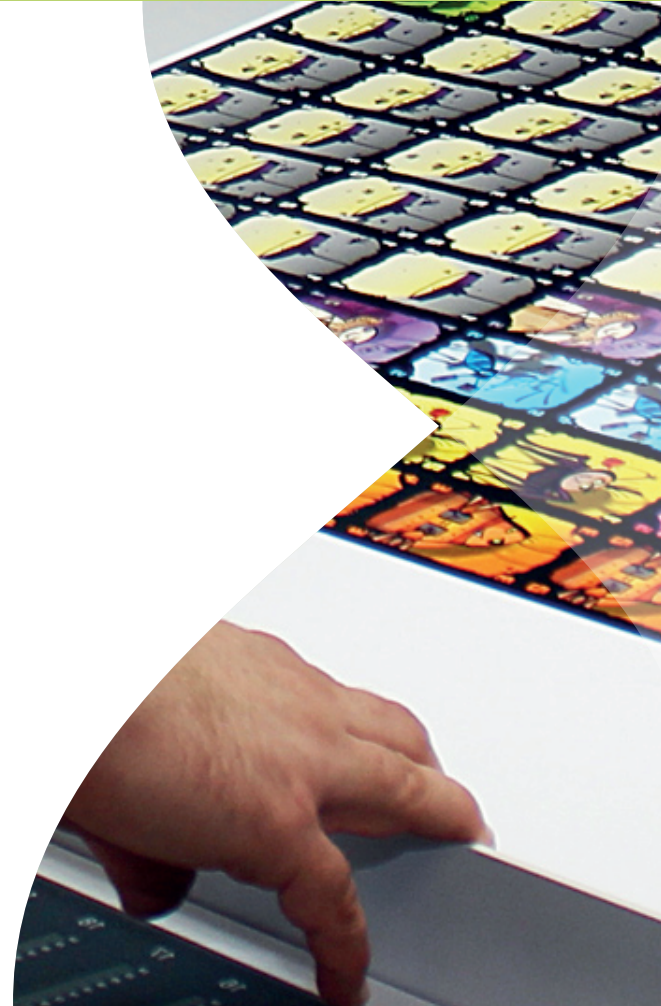
Reducing and eliminating materials

Our aim is to **reduce or eliminate the use of materials** by changing product specifications.

When planning a new product, we always make a preliminary analysis of how resources can be used optimally. For example, we look at how a printing sheet can be used efficiently so that as little waste as possible is produced.

We also consider how to optimize the number of games per box and pallet in order to lessen the ecological impact of transport.

In addition, we evaluate how to replace plastic components with a green alternative, or reduce plastic use by making changes in the packaging.



Standardized printing processes and color proofs help us save material

Reducing paper waste is a top priority at our ASS Altenburg plant

Heiko Lasch is Manager Prepress/Print at our Spielkartenfabrik Altenburg (ASS) factory in Germany. His operation prints <volume/weight> of playing cards each year. In recent years, print runs have become smaller and, considering the way machines have to be set up, this could lead to a lot of wasted material. Fortunately, working with his operators and their supplier, he found a solution.

“We use so-called running sheets to adjust the colors on the machine precisely”, says Heiko. “The sheets are made of paper and eventually go to waste. Every time different colors are used, the machine has to be readjusted to those colors. So you end up using a lot of running sheets. The more of these sheets the machine needs, the more paper is wasted.”

For this reason, Heiko recommends working with standard color proofs whenever possible. “Standard color proofs allow you to start up a new print run or order with previous color settings. The consequence?

You need fewer running sheets and therefore produce less paper waste.

“Encouraging customers to use standardized color schemes, has become a good practice at the factory. And so is the practice of using both the back and the front of any running sheet.”

It was Heiko and his team’s goal to reduce the usage of paper by 1 percent in 2020. By the end of the year, they had saved 2.28 percent.

Importance of operators

Printing machine operators play a pivotal role in the reduction of paper at ASS Altenburg. “They have to find the right balance”, says Heiko. “Operators will judge any printing situation differently and we like to give them the autonomy to do so. Their starting question is always: ‘How can we guarantee the highest-quality printing and save paper at the same time?’ Some printers will argue that it’s better to be safe than

sorry. For any given run, they will print some more sheets, so that they're sure they have enough high-quality prints. Others are bolder and print less, which will most probably lead to less paper waste."

“ You have to talk to the operators and encourage them to be more responsible and conscious of the need to reduce waste.

Heiko Lasch, (Pre)Press Manager,
ASS Altenburg

It takes a lot of training to keep operators focused on our sustainability objectives. "We closely collaborate with our printing machine manufacturer, Heidelberg. Their trainers visit our facility every year and help our machine operators to reduce paper waste. Last time,

the trainers conducted a performance check for every operator and decided that we are well-organized, and our operators have the right amount of knowledge."

"During the course of the year, we discuss the subject of paper reduction with our operators regularly. We give them tips and provide additional training to those who want to adjust the color parameters more precisely. This keeps the practice front of mind."

Saving energy, water, and chemicals

Clearly, good practices and standardized processes are making a real difference at the plant. "A lot of small improvements create a significant result", says Heiko.

There's another area where his team are making their plant more sustainable – inside the offset printing machines. Traditionally, using the CMYK four-color model (Cyan, Magenta, Yellow and Black), the color plates have to be prepared and washed, which requires a lot of chemicals and water. Heiko says: "After the plate

setting (where a laser pointer paints a picture on the plate), the plate needs to be developed – this used to take up a lot of water and chemicals. Now that development happens inside the printing machine, using less energy and no chemicals or water whatsoever."

Encouraged by ISO 14001

"Sustainable measures have been present at ASS for over 20 years now", says Heiko, who has worked there for the past 25 and seen the factory evolve. "Our efforts are cost-effective, and save us time and materials. But we shouldn't underestimate the power of certification and audits. When we were working towards our ISO 14001 certification, we needed a clear and ambitious goal. Further reducing our paper use was the one that did it."

What could ASS Altenburg do better? "I'd love to exchange more information on our printing practices with my colleagues at other Cartamundi facilities. That would be another step in the right direction."

Promoting a sustainable company culture

Our aim is to **raise awareness about sustainability** among our employees.

At Cartamundi, we're transforming our company culture in every country where we operate.

We've launched a number of initiatives to inspire our employees, their families and our communities to live sustainably together – like good neighbors.



Every year we rid our local community in Japan of waste

27 years of cleaning up waste at JCP

Japan Card Products Co. – also known as JCP – is the joint venture between Cartamundi and Amada Printing. Every year, JCP participates in a big clean-up project in its local community, alongside 32 other companies.

Kiyoko Nagao, General Affairs Manager at JCP, says: “We have been working on this project for 27 years. Every year we collect all the waste in the industrial area of Kazo – where our factory is located. Cleaning up is one of our ways to contribute to our community. And with great results. In 2020, we collected over 300 kg of waste in the neighborhood.”

“ In 2020, we collected 300 kg of waste

Kiyoko Nagao, General Affairs,
Japan Card Products

Building towards a more sustainable society is a top priority at JCP. Together with Kazo City Hall and the Chamber of Commerce and Industry, JCP also helps to organize summer festivals, health management seminars, and sports tournaments. At those events Kazo residents and JCP employees get together to have a good time and improve their quality of life.

It's how JCP ensures its positive impact on local society.



Factory flourishes amidst over 100 newly planted trees

Employees and distinguished guests plant new trees at Parksons Cartamundi in India

An estate of 39,863 m². A new factory building of 11,731.42 m². An investment of € 5 million. The plant that Parksons Cartamundi built in Pardi, India, represents some staggering numbers. The investment brings a more extensive product range,

and more employment. At the same time, over 50 mango and cheeko trees had to be cut down to make way for the new site. Luckily, twice as many trees have been replanted on the site since.

“Since 2013, when the factory opened, it has become a bit of a habit to ask important visitors like customers, suppliers, shareholders, etc. to plant at least one tree during their visit,” says Kapil Kejriwal, Executive Director at Parksons Cartamundi. “By 2020, more than 100 employees and guests planted a tree on our property. Last year, 20 more were planted. So that makes 120: a lot more than the 50 we had to cut down.”

Among the enthusiastic tree planters were CEO Stefaan Merckx, Steven Schoenmaekers (EVP Global Accounts & Innovation), David Germis (EVP Europe), CFO Istvan Lagaert, Paul Roberts (VP Corporate Programmes), Chairman of the Board Jean-Louis de Cartier de Marchienne and Boardmember Frederic de Somer and of course Mr. Kejriwal himself.



“ Together, employees and visitors have already planted some 120 trees. More than the 50 we had to cut down.

Kapil Kejriwal, Executive Director,
Parksons Cartamundi

Sustainable entrepreneurship

For the Cartamundi Group it's becoming ever more important to do business with an eye for the environment and the climate. Parksons Cartamundi certainly does its part, and not just by planting trees.

“In Pardi we also try to banish plastic as much as possible. Both from our products and from our daily lives”, says Kapil Kejriwal. “We recycle waste water and collect rainwater with a water collection system. By setting a good example at work, we hope that our employees will take these habits home with them.”



How we encourage Germans to recycle

We've designed detailed on-pack icons to educate consumers

Germany is Europe's leading recycler, reprocessing 68% of its municipal waste. In 2016, Germans recycled 70.7% of their packaging waste, already exceeding the EU target for 2030. "A lot of households are indeed recycling diligently," says Susanne Thomas, Head of Marketing at our ASS Altenburger factory. "But you can't just assume people know how to do it correctly. That's why 90% of our game boxes now sport clearly visible, detailed recycling icons."

Susanne says increasing numbers of business customers and consumers are asking ASS Altenburger about the sustainability of our products. "There's a real need to educate people on what can and can't be recycled, and to inspire our partners and toy manufacturers on this issue."

"When reviewing our factory to award us the ISO 41001 certificate, our auditor warmed to the idea of using recycling icons on our packaging. That certainly inspired us to develop it further," Susanne says.

Learning from another industry

"When designing our new icons, we took inspiration from the food industry. I have a food pack at home that's very cleverly branded, and contains clear information on how to recycle the various contents and packaging correctly. Using this pack as our model, we went to work on our own designs."

“It would be great if we could encourage customers to recycle through online articles, connecting them to these via QR codes on our packaging.

Susanne Thomas, Head of Marketing, ASS Altenburg

The results are simple: graphic black icons that stand out on any colored background and are easy to follow. “Since we also export our retail games to Switzerland and Austria, we made sure our icons would fit the recycling guidelines of these countries as well,” says Susanne.

Susanne’s team decided early on to not put the icons on the front of the packaging: “It’s important information, of course, but it’s still secondary in importance — we don’t need it to convince consumers to buy the games — and we already have a lot of elements to fit on the outside. Our icons are clearly visible though. You can see them as soon as you open the box. Sometimes, we also include the icons on the game-rules sheets featuring the rules of the game.”

Helpful information

So, what do the icons look like? Here are three examples:



“On the inside lids of the boxes containing our games, we include these combinations of icons – one for each component,” Susanne explains. “In these examples, the outer box and cards go with paper; the inner tray and plastic bag with plastic; and the cup and dice with general waste.”

These icons can be found on our own playing cards and children’s card games such as the My Lilimals 3-in-1 Spielebox and the Karten & Würfel Box (two traditional German games involving cards and dice) as well as the card quiz Querdenker, plus various Disney card games.



Working to reduce plastic

As mentioned above, Germans are avid recyclers. “We are trained,” says Susanne, “Kids learn how to sort waste properly from kindergarten onward. Local governments are really well organized as well. They encourage people to handle waste consciously, with a yearly plan.”

ASS Altenburger's icons initiative ties in with Cartamundi Group's bigger strategy on sustainability. It's part of our plastic reduction program, which takes its cues from the avoid-reduce-reuse ethos. In line with this principle, the factory ensures that recyclable items don't end up with general waste. This way, valuable materials can be reused later, and we can reduce our consumption of raw materials.

So, what's next for ASS Altenburger? “We're exploring how we can communicate more broadly about our green initiatives,” says Susanne. “It would be great if we could encourage customers to recycle through online articles, connecting them to these via QR codes on our packaging.”

Things are moving in a positive direction in the customer field as well. “More and more customers are interested in green products and promotions, highlighting the fact that sustainability isn't just good for the environment; it's also good for business.”

Encouraging sustainable commuting

Our aim is to **encourage as many employees as possible to commute** by bicycle, public transport, or electric and hybrid cars.

Cartamundi encourages sustainable transport, either by providing bikes, promoting the use of public transportation, or even offering chartered transport.

In Europe, our companies in Ireland, Belgium and Germany promote cycling. In other countries, where distances are greater, we focus on promoting the use of public transport or even providing a bus to bring employees to work. For example, at our Massachusetts facility (ELM), there is clear communication about the

bus schedules, in Japan we provide transport from the station to the factory and in India, we are helping employees to live closer to our factory.

In general, our fleet is becoming much greener. Diesel cars are gradually being replaced by more sustainable hybrid or electric alternatives. With more of us cycling to work and fewer of us polluting the air with car fumes, we help to keep the environment clean for our neighbors.



Cycling for a better planet

Corporate bike leasing is the next step towards green mobility

Cycling is growing in popularity, especially in Europe. Since 2018, employees at Cartamundi Turnhout are able to lease a bike, thanks to our collaboration with KBC Bicycle Leasing. It's a great success. By 2020, 116 employees have joined the bicycle project. That means a whopping 34% of employees at Turnhout used a bike to go to work by the end of 2020.

When the employees of Cartamundi Turnhout asked for a bicycle leasing option, Sophie De Schepper, Project Coordination Group Technology, got in touch with various companies: "We decided to join forces with KBC Bicycle Leasing, because they offer a total package – from top-notch bicycles to annual maintenance."

Commuting to work by bike

Sophie De Schepper and her colleagues organized information sessions to show employees the options they had. During these sessions, the leasing agency and Cartamundi's social secretariat answered all their practical questions. "We start the registration round for new bikes in the first quarter of every year. In the meantime, the project is doing well: 116 employees have already joined."

One of those employees is Staf Geeraerts, Technical Purchaser at Cartamundi. He has been leasing a racing bike since 2018. "With the lease bike, not only do I commute to work, but I also use it in my spare time. Because of those many kilometers, the bike does wear out a bit, so the annual maintenance is a plus. The lease package also comes with an insurance and bicycle assistance. A great deal if you ask me."

“The lease package comes with an insurance and bicycle assistance. A great deal if you ask me

Staf Geeraerts, Technical Purchaser and early adopter



More bicycle facilities

Commuting by bicycle is a great alternative to the car. There are lots of benefits to riding a bike to work, Sophie says. “A bicycle doesn’t emit CO². And every bike ride to work is one car less on the road. Our leasing project undoubtedly has a positive impact on the environment. The added bonus is that cycling is healthy for our employees. It is a tax-friendly and cost-saving means of transport. Employees receive a bicycle allowance for every kilometer they ride.”

Bike leasing is an important step towards sustainable commuting. As a result of its successful leasing project, Cartamundi Turnhout has expanded its bicycle parking facilities considerably in 2020. They are now equipped with electric charging points. “We’ve noticed that other branches of the Cartamundi Group, like Ireland and Germany, are exploring similar initiatives” says Sophie. “Cartamundi is also making its car fleet greener. We are switching to electric and hybrid cars.”

“A bicycle doesn’t emit CO².
And every bike ride to work
is one car less on the road

Sophie De Schepper, Project Coordination
Group Technology, Cartamundi

Participating in Car-Free Day

Every year in September, Cartamundi Turnhout participates in the Flemish ‘Car-Free Day’. “On Car-Free Day, Cartamundi encourages its employees to travel by train, bike or carpooling,” Sophie says. “We collaborate with a local bicycle dealer, so employees can test lease bikes for free. Every participant receives a goodie bag, carpoolers can use priority parking spaces, and our bicycle sheds are given a festive make-over.”

Healthy and sustainable initiatives at Turnhout

Cartamundi Turnhout is off to a healthy future. To get employees off their feet during the workday, there is Cartamotion – a fun programme filled with sports activities and tournaments. The Bicycle Leasing project complements that initiative perfectly. “The ardent cyclists who participate in Cartamotion competitions also play an active role in our bicycle leasing project,” says Sophie. “So not only are they improving their health, but they’re also contributing a better planet by leaving their cars at home.”