
SUSTAINABILITY
Homa

Homa

WE TAKE CARE OF YOUR DREAMS

FORE-WORD

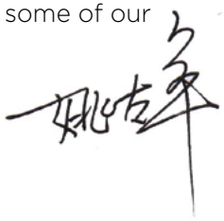
Michael Yao, CEO and Co-founder, Homa Appliances

As pure OEM producers, one of the key factors of our success is the timely under-standing of our clients' needs in terms of serving their own customers' aspirations. Being able to recognise trends and signals in the world markets indicating shifts in demand is critical to our business. Working with global clients means we need to be constantly anticipating those needs.

As we often say, listening is one of our greatest skills, and part of our culture. Caring is another one, and we feel a great sense of responsibility when it comes to the future of our planet, as the products we manufacture can and must play an important role in changing the current state of things. We know our clients' cu-stomers are not prepared to compromise on this subject since they will be using their appliances every day for the next 8 to 10 years.

We have long recognised this trend, and have focussed our efforts both on our industrial process and on the actual performance of our products. We have made enormous progress in terms of energy classes, and lifted our entire production to-wards high energy efficiency standards as well as overall recyclability, the best way for us to leverage economies of scale and remain highly competitive. We make a point of using the latest, established technologies to offer products that are attractive and have compelling design, but that are also champions of ener-gy-efficiency. Next year Homa will turn 20. Over the years we have introduced many innovative platforms, but always with great attention for the environment. For instance, we have started using R600 refrigerant gas right from the beginning, potentially saving the atmosphere millions of tonnes of ozone-depleting substan-ces. All the instruction manuals of the 9 million refrigerators we produce every year are printed with eco-friendly soy-based ink on recycled paper. Every product in our range beats industry average in terms of energy-efficiency. When introducing new features, we have started using more metal, which is easily recyclable, and less plastics.

In our trade, credibility is everything, and we want to pass on that credibility to our clients, whose brands will be held accountable for their products' impact on our planet. In April 2022, Homa will reach the 100 million refrigerators mark. At the moment you are reading this article, around 50 million Homa refrigerators are ac-tually switched on, and 1 in 5 such products on display in any appliance store on the planet has come out of our production lines. A motive of celebration, but also of deep reflection. For this reason, we are glad to share some of our thoughts on the matter.



CONTENT

GO FORTH AND GROW HAPPILY: SMART & SUSTAINABLE IS THE NEW PARADIGM.

An eye-opening interview with Francesco Morace, founder of Future Concept Lab, about how to reconcile economic growth and the preservation of our planet...

How can we continue growing our economies and maintain our current consumption levels, without irremediably harming our planet?
We all agree that our growth model over the past decades is not sustainable. In that, degrowth theorists had the correct intuition, but the cure they suggested is inapplicable. Stopping the development of world economies, and even de-scaling them, simply will not happen. Nobody is prepared to make radical concessions on their lifestyles. Being "against" industry in general, or multinationals, antagonising market economies, hasn't produced the expected outcome and certainly didn't win over the masses.
We must think differently.
Awareness about the issue has grown tremendously in our societies,

especially in the younger generations. Our consumption habits are actually changing in the light of this increased sensitivity, and in a profound way but not in the sense of a radical reduction of our social metabolism. We are not consuming less, but differently. The way we go about purchasing a new appliance, for instance, has completely changed from only a few years back. The "Fridays for future"generation, the adults of tomorrow, is already a lot smarter and attentive in its buying decisions and is pushing the older generations into action. Industry, on its part, is quickly responding to this accelerating shift in demand towards environment-friendly products and services, not because of a new-found idealistic temperament, but because it makes good business sense. Moreover, reputation is an ever more important part of a company's brand equity, and is now solidly linked to its sustainability stance.
In 2016, Ulrich Beck, author of "The Metamorphosis of the World" (Polity Press, 2016) said that "climate change is transforming our concept of the world". He also predicted that these changes in our societies would be perceived by multinationals before governments.
He was right. Nowadays, while world governments still struggle to come to an agreement on the common goals to be pursued and translate them into national legislation, it is not uncommon to see large organisations include sustainability objectives, alongside financial and economic performance, in their mission statements. And the trend is on the upside.

Digital saved exactly what it was accused of destroying: our social lives.

You mention “smart” as part of the solution...
Yes, and that’s the second part of the equation. Smart & Sustainable is the new paradigm for a growing world economy that also effectively addresses climate change, helping to preserve and restore our natural environment. I like to call it “happy growth” (Morace, Francesco, Crescita Felice, Egea, 2015) for it does away with a sense of guilt that was hindering the debate.
The digital revolution has a key role to play here. Smart technologies, big data, smart cities and our connected societies allow for an unthinkable level of precision in monitoring consumer habits and market trends, providing predictive models that help reducing waste and consumption of energy and other resources. The same instruments also serve to optimise virtually every process in our economies, and can easily be oriented towards reaching CO2 reduction objectives.
Smart is also to be intended in a bottom up perspective, as a responsible attitude on the part of each and everyone of us. A lot can be achieved through virtuous and environmentally conscious individual behaviours, from recycling and reusing to a greater attention to what we eat, to personal mobility and to the many choices we constantly make in conducting our every day lives.
The recent lockdown periods we were all forced into to varying degrees, have brought about profound changes in our behaviours over a relatively short period of time. In the recent past, such a rapid and radical transformation was absolutely unthinkable. For one thing, digital, which was accused of destroying our social lives prior to the pandemic, was the very instrument of our social salvation during the dark months of isolation.

Nowadays we tend to shop less frequently, hence the need for larger fridges to store greater quantities of supplies. How does that affect our sustainability?
There is no right or wrong here. Variety of behaviours is vital for our developed societies. We must be free to choose what suits us best, as long as we keep climate issues in mind. On one hand, bulk buying helps save on trips to the supermarket and optimise our shopping while reducing waste, but the opposite trend is increasingly significant: Shopping more frequently, privileging local, fresh and seasonal foods that aren’t mass produced nor excessively processed.
A large part of these products get consumed on a daily basis, so they don’t need such big refrigerators, which in turn leads to savings on energy consumption, raw materials and transportation.
Whatever the smart personal choices, industry has a key responsibility and a central role to play in providing the smart processes and products that will eventually help us reach our sustainability objectives and win the battle for the survival of our planet.

Degrowth theories correctly diagnosed the disease, but got the cure wrong.

Francesco Morace

Future concept LAB

Francesco Morace, Sociologist and writer, Francesco Morace has been working for over forty years in the sociological and market research field. He is the founder of Future Concept Lab. Strategic consultant agency for companies and institutions on an international level and since 1981 held conferences, courses and seminars in many countries in Europe, Asia, North and South America.

Professor of Trend Forecasting for fashion at Politecnico di Milano from 2009 till 2020 and the author of over 20 books including “La rinascita dell’Italia. Una visione per il futuro tra etica ed estetica aumentate” (2020), “Il Bello del Mondo” (2019), “Futuro + Umano” (2018), “Crescere. Un Manifesto in dodici mosse” (2017 paperback/ Italian), “ConsumAutori. I nuovi nuclei generazionali” (2016 paperback/Italian and English); “Crescita Felice. Percorsi di futuro civile” (2015 paperback/Italian), “Italian Factor. Come moltiplicare il valore di un Paese” (2014 paperback/ Italian) all published by Egea.

→ www.futureconceptlab.com

COP 26: MORAL HIGH GROUND OR COPOUT?

A nonpartisan analysis of the outcome of the 2021 Glasgow conference.

“This is a fragile win. We can now say that we have kept 1.5°C degrees alive. But its pulse is weak and it will only survive if we keep our promises and translate commitments into rapid action”.

→ OPEN LINK

Alok Sharma, president of COP26.

Is this a message of hope or deep anxiety? It’s ambiguous, at best. But what exactly was COP26, and why this shaky statement by its president?

In 1994, 197 members agreed on the United Nations Framework Convention on Climate Change (UNFCCC). Each member is a ‘party’ to the treaty, so COP stands for Conference of the Parties - COP26 was their 26th meeting.

Over the years, it’s been tricky to hammer out agreements on making the difficult changes needed to halt or reverse climate change, despite the increasing urgency in all parts of the globe. There are so many competing interests between states with their own domestic priorities and economies, and the countries and territories traditionally most affected by climate change have been those with the least power and influence over policy.

But in 2015, the Paris Agreement made some progress among members, agreeing to:

- Reduce the amount of harmful greenhouse gases produced and increase renewable types of energy like wind, solar and wave power
- Keep global temperature increase “well below” 2C (3.6F) and to try to limit it to 1.5C
- Review progress made on the agreement every five years
- Spend $100 billion dollars a year in climate finance to help poorer countries by 2020, with a commitment to further finance in the future.

Climate activists protested that these measures were nowhere near enough. After all, when the house across the road from your own is burning, do you sit down with your neighbour for a chat and decide that in half an hour the two of you will stroll across there with a cup of water to help out?

Impact of Relative Sea-Level Rise on Low-Lying Coastal Areas of Catalonia, NW Mediterranean, Spain. Uxía López-Dóriga, and José A. Jiménez

Sea-level rise (SLR) will significantly alter coastal landscapes through inundation, erosion and salt-water intrusion of low-lying areas worldwide. Considering that 10% of the world’s population inhabits areas less than 10 m above sea level… the most dramatic and immediate effects of SLR will be the inundation of coastal lowland areas.

→ OPEN LINK

But at least the Paris agreement was a move in the right direction. Then in a further positive move, in 2019, COP25 met in Madrid, and each nation agreed to cut their carbon emissions by the next meeting in Glasgow.

The world is now about 1.2C warmer than it was in the 19th Century - and the amount of carbon dioxide in the atmosphere has risen by 50%.

So now here we are in 2021 at the COP26 meeting in Glasgow, delayed by one year because of Covid19. What were the hopes and the outcomes?

“

New Glasgow climate pact offers some ‘breakthroughs’ but also ‘deep disappointment.

→ OPEN LINK

France24

It is now known that we must halve global emissions by 2030 in order to keep worldwide temperatures at a level that will not provoke a wholescale catastrophe.

To best manage this, it had been hoped that there would be an agreement in Glasgow to really accelerate the rate of change with a commitment from all countries to phase out the use of fossil fuels and coal, but in the end this was down-graded to a ‘phasing down’ of coal usage. However, this is significant as the first time fossil fuels have been mentioned in any COP text, despite the fact that they are responsible for 90% of the greenhouse gas emissions which cause rising temperatures.

When talking about climate-induced temperature rises, we measure against pre-industrial levels.

The previous “well-below” 2.0C levels agreed in Paris would have taken us to a potential 3.7C rise against those pre-industrial levels by the end of the century, catastrophic for humanity.

→ OPEN LINK

Now, with the decision in Glasgow for a 1.5C global temperature limit, the outcome is still uncertain, but there is a better, if small, chance of keeping the world safe. With temperature levels now truly front and centre of attention, a second positive to come out of COP26 is the decision to speed up national efforts to reduce emissions and contribute to climate solutions, with the next check-in at the end of 2022. Unlike the previous five year intervals, more frequent accounting among the nations will tighten scrutiny and commitment to action.

On top of these crucial decisions around emissions, the power of nature was recognised in its ability to combat the climate crisis. $20bn from private and public sources was committed to forest protection, and more than 100 countries pledged to reverse deforestation by 2030 at the latest.

On the other hand, one of the greatest disappointments of COP26 was felt by the most vulnerable nations, who encountered a deep lack of financial support for their experience of rapid loss of homes and livelihoods, and damage to land and infrastructure. As Barbados’s Prime Minister Mia Amor Mottley said in her address to the delegates, for her country, a 2-degree Celsius rise in global temperature would be a “death sentence.”

Outside the Glasgow venues and via media around the world, climate activists demonstrated and spoke vociferously against what they saw as a lack of meaningful action, while certain commentators found some areas of very cautious optimism.

So the jury is out while the clock ticks on. Can and will the COP countries take their commitments seriously, pay the sums of money they have promised, take actions through law and influence to make serious and rapid changes to cut emissions? Or will they shake off the dust of COP26 with a sigh of relief that it is over for another year, avert their eyes, and make music to another tune, while the planet burns?

CLIMATE CHANGE, COVID 19 AND LOCKDOWN

Effects of the recent near-total shutdown of our economies on global warming, and lessons, if any, to be learned.

For those in the forefront of climate change research, and populations that are directly affected by floods, drought and wildfires, tackling carbon emissions is an urgent and ever-present topic of concern. For the rest of the world, while awareness of the impact of rising global temperatures may be slowly increasing, it is still not a matter of great urgency, and for everyone since early 2020 the Covid19 pandemic has taken centre stage as the most pressing issue the world faces.

But is there any evidence to show whether the emergence of Covid19 and climate change are linked, and can we learn lessons from how authorities, health agencies, businesses and individuals have responded to the crisis as we take future action on the climate?

First question, did the global lockdowns reduce harmful emissions in the Earth's atmosphere? With hardly any planes flying, cars off the road and much manufacturing at a standstill, this seems a no-brainer, and in fact a study published in May 2021 showed that

globally, carbon dioxide emissions dropped by nearly 7% in 2020. However, the study concludes that this drop is too small in both magnitude and duration to have any significant impact on global climate, and the World Meteorological Organization reported that overall levels of carbon dioxide in the atmosphere still increased in 2020 compared to 2019.

→ OPEN LINK

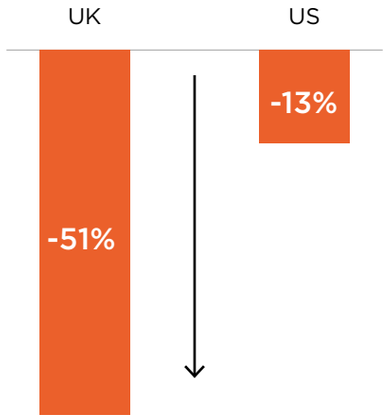
A tiny sliver of good news is that as carbon dioxide disperses very slowly from the atmosphere, we may see lockdown-influenced decreases in the future, particularly if post-pandemic recovery plans build in carbon neutral measures. An example is South Korea, which is advancing an ambitious climate agenda to support its recovery, while the European Union's €750 billion recovery plan dedicates 25% of total stimulus funds for climate friendly measures, including supporting renewable energy and shifting to sustainable agriculture. The 2021 COP26 meeting also secured a vital commitment among members to keep the global temperature rise to 1.5% over pre-industrial levels.

→ OPEN LINK

LOCKDOWN POSITIVES

UK based website Carbon Brief reported that the UK saw greenhouse gas emissions drop to 51% below 1990 levels – equivalent to temporarily being halfway to meeting the UK's net zero by 2050 target.

United States emissions fell by almost 13%.



www.carbonbrief.org/analysis-uk-is-now-halfway-to-meeting-its-net-zero-emissions-target

Air quality

Air quality is one of the areas where climate change and Covid19 intersect. Carbon emissions from fossil fuels cause a deterioration in the air quality in cities, and extreme weather conditions drive wildfires that can drastically affect the breathable atmosphere, as recently seen in Australia, Southern Europe and North America. Recent research at Harvard has found that people who live in places with poor air quality are more likely to die from Covid19 even when accounting for other factors that may influence risk of death such as pre-existing medical conditions, socioeconomic status, and access to healthcare. This study found that a small increase in long-term exposure to PM2.5 particulates leads to a large increase in the Covid19 death rate.

→ OPEN LINK

Growth in pandemics

Many of the root causes of climate change also increase the risk of pandemics. Deforestation, which occurs mostly for agricultural purposes, is the largest cause of habitat loss worldwide. Loss of habitat forces animals to migrate and potentially contact other animals or people and share pathogens. Large livestock farms can also serve as a source for spillover of infections from animals to people. Research has shown that high biodiversity reduces the risk of animal to human spillover. The recent Ebola epidemic in West Africa probably occurred in part because bats, which carried the disease, had been forced to move into new habitats because the forests they lived in had been cut down to grow palm oil trees. In mosquito- and tick-borne diseases, where there is a high diversity of wild vertebrates in a particular area, the mosquitoes and

ticks feed on them instead of people. This results in lower infection rates in humans.

Investing in public health

A good baseline of health among the population, through the provision of healthcare, affordable healthy food and food education, and incentives to exercise more helps people develop strong immune systems and reduces their risk of developing conditions such as diabetes and heart disease. They are thus more able to resist very serious or fatal infections by new diseases such as Covid19.

So what can the pandemic teach us about tackling climate change?

Governments showed that they can take fast and unpopular measures when necessary, individuals on the whole will follow the political lead and the science, and scientists around the globe collaborated almost miraculously to understand Covid19 and come up with vaccines in record time.
Each country had its own rapid learning curve as Covid19 hit. Until that moment, psychologically it was a problem happening elsewhere, despite all the shocking news reports. But once the virus arrived, we learned that people are motivated by the personal and the actionable. The pandemic endangered the people and the things we care about, and as far as climate change is concerned that is also true. What is important is that this becomes more widely understood, and the same urgency is afforded to collaborating and taking effective actions as has been dedicated to dealing with Covid19.

“

The biggest climate change myth is that the problem won’t affect us as individuals.

Katharine Hayhoe,
Atmospheric Scientist

REAL GREEN VS GREENWASHING

When you're buying a new brand or product, are you seduced by the pretty green leaves adorning the label? Or by the 'eco-friendly' or 'all natural' claim? These message work at an insidious level – after all, we want to do our best for the planet, and we're all attracted by images of nature, but are these marketing ploys telling the whole truth? Or are we falling victim to 'greenwashing'?

> Greenwashing is an attempt to make people believe that a company is doing more to protect the environment than it is.
>
> Cambridge dictionary

Products and services are greenwashed through massive marketing and PR strategies: rebranding, renaming, repackaging. Greenwashing is all about the idea that products and processes are "chemical-free," "from natural origins," and less carbon-emitting and more sustainable than their competitors.
But it's easy to make these claims – as consumers we need to stay alert that some company statements might only reveal some of the truth, or at worst, not be true at all. For instance, arsenic is an 'all-natural product' but we wouldn't want to find it in our face cream!
A common example of greenwashing is a claim suggesting that a product is green based on certain characteristics without considering other important environmental issues. For example, just because a paper product comes from a sustainably harvested forest, it is not necessarily environmentally friendly. There may be other important environmental issues in the background, such as the greenhouse gas emissions or chlorine used in bleaching during the paper-making process.

The other side of the coin

So what can we do to understand whether a product or service has been greenwashed or not? And how can companies that genuinely wish to behave in a responsible sustainable way prove their integrity to their potential customers?
As consumers, we need to be on the alert to look below the surface and investigate claims, particularly if we are making a big investment and wanting to make choices that will have an impact on the health of the planet. Can the company claims be verified by third parties? If a product claims to meet named industry standards, is this actually true? A little Internet research these days will usually reveal the truth. Proving your integrity as a company concerned with sustainability derives from your values and the way you bring these to life through all your activities and choices. Your decisions will lead to products and services that genuinely do their job better and make a difference to people's lives rather than just innovating for innovation's sake. Honesty and transparency are the watch words – there's nothing wrong with a great marketing campaign to sell an amazing new product when it really meets a need and has been developed and produced

sustainably. And it will be all the better because your customer will be able to look behind the scenes and see all the steps you have taken to fulfil your values.

Carbon offsetting

Companies that are unable to eliminate all carbon-emitting activities can purchase carbon credits which offset the amount of carbon they produce. Each carbon credit equals the cancelling out of 1 ton of carbon in the atmosphere. The money raised goes towards mainly agricultural or forestry projects, although a credit can be made by nearly any project that reduces, avoids, destroys or captures emissions. Individuals or companies looking to offset their own greenhouse gas emissions can buy those credits through a middleman or those directly capturing the carbon. In the case of a farmer that plants trees, the landowner gets money; the corporation pays to offset their emissions; and the middleman, if there is one, can earn a profit along the way.

This last point of course is where purchasing carbon credits also demands caution. There are scam schemes waiting to catch out those who don't do their homework, so it's best to look for projects and programmes that are third party verifiable, such as the Verified Carbon Standard (Verra), Gold Standard, Plan Vivo and several others.

As an example, in the words of Verra CEO David Antonioli, "The three main things that make up the Verra Carbon Standard are: accounting methodologies specific to the project type, independent auditing and a registry system. This is to make sure that both the buyer has confidence that they're buying something that is actually legit, and that the sellers themselves have something valuable."

NBC News

EXAMPLES OF NAUGHTY GREENWASHING

One investment company says they pay farmers to convert their fields into forests and sell those credits to corporations. But several farmers claim they already planted trees through a government conservation program.

Bloomberg, Dec 2020

International soccer governing body FIFA bought credits to help offset emissions from the World Cup in Brazil. But soon after, the trees were cut down. The project was suspended in 2018 after more trees were logged than all the credits sold.

www.climatechangenews.com/2018/06/11/fifa-accused-greenwashing-world-cup-carbon-offset-scheme/

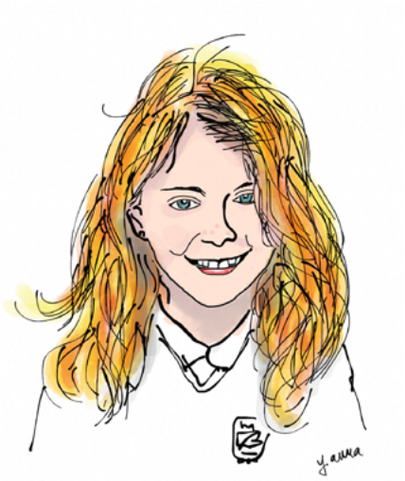
And the last word is that even if companies don't care about the ethics of their green claims, making false statements can lead to severe financial consequences, as happened to Walmart in 2017. Conversely, building sustainability into your company's core values will win the hearts and loyalty of your customers for the long-term.

www.environmentalleader.com/2017/02/greenwashing-costing-walmart-1-million/

LETTER TO MY 40 YEAR OLD SELF

The planet we're leaving to our children, in the eyes of a ten year old.

Keira Munnelly, 10, lives in London with her mum and dad and 8 year-old sibling Jake. She is part of the generation of children that will inherit a climate-changed planet. Many of the commitments made by governments at the Cop26 in Glasgow refer to 2050 as the deadline for achieving their carbon neutrality goals. By then, Keira will have just turned 40. In a letter she is writing to her future self, she expresses what that means to her, and how she sees the future of our planet, in her own words.



To 40 year old me,
I am writing this letter in the December of 2021. I am 10 years old and live in the UK. I wonder if that's changed by 2051?
I have some questions and hopes about our environment for the future. Firstly, I wonder if all cars are electric by 2051, because now, lots of electric cars are very expensive, and I think (and hope!) that all or most cars will be electric and cheaper, since there is a lot of pollution at the moment from the fumes that are expelled into our environment.
Next, I wonder what the ocean situation is? At the moment, there is so much plastic in the ocean that lots of sea animals are dying from eating the wrong thing or from getting all caught up in a piece of plastic. At the moment, people are trying to save our sea animals and not do as much fishing.
My third paragraph is about deforestation. People are cutting down the rain forest to put farms on and that releases carbon dioxide. However, many people are trying their hardest to plant new trees and set up a more positve environment.
Leading on from this, what is your current opinion on zoos? I know it sounds unusual to add this into this letter, so let me explain. Some animals could be majorly endangered, from losing their homes or even being poached, and some of the only animals in these species could be in zoos. I can't tell if this is good or not, because they could have been held captive for their whole life, and might not be able to survive in the wild. On the other hand, they could go back into the wild, reproduce and possibly keep this species alive.
Similarly to the car subject, something better for our environment is solar panels. They are also VERY expensive, but they are much better than wasting electricity that is valuable.
To conclude, I hope the next generation, and the next, and the next, have a future to look forward to that is sustainable and healthy.

Keira Munnelly

SUSTAINABLE PACKAGING

One of the world's greatest environment villains is trying hard to redeem itself, saving the day, and the planet.

Put simply, sustainable packaging is the sourcing, development, and use of packaging solutions that have minimal environmental impact.
Ask the older generation about the packaging they remember from their youth and you might be surprised. Cotton or paper bags, sometimes even newspaper, to carry loose produce, simple cardboard boxes for deliveries which were then recycled to pack supermarket shopping, no plastic wrapping or bags, and sheets of padded cotton to protect large items for transportation.

But in the past 50 years, faster product cycles, global supply chains, new materials, all driven by different and evolving consumer expectations have brought about the mass use of industrial packaging, from tightly wrapped fruit in supermarkets to the shipment of large domestic white goods.
But alongside the meteoric growth in the global movement of products needing to arrive protected and undamaged, there is now rising concern about the toll that unsustainable packaging, particularly single-use plastics, is taking on the planet.

According to the "Plastic Waste Makers Index," published by the Australia-based philanthropic Minderoo Foundation, in 2019, 130 million metric tons of single-use plastics were thrown away around the world, with 35% burned, 31% buried in managed landfills and 19% dumped directly on land or into the ocean. These figures make scary reading, and unsurprisingly growing numbers of concerned consumers are pressurising legislators and agencies, manufacturers and suppliers, to find others solutions, without losing the undoubted benefits of well-packaged products.

→ OPEN LINK

> An average consumer in the western world will handle more than 50 packaged products / items every day.
>
> GWP Group

Reuse, reduce and recycle – the circular economy

On the frontline of everyday life, campaigns encourage the consumer to buy unpackaged products where possible, use less plastic in the home for food storage, use reusable coffee cups and water bottles, and drink tap or filtered water to avoid single use plastic bottles.

For industrial packaging, much research is taking place to create lighter materials to make transport more efficient and sustainable by reducing weight and thus reducing the carbon footprint of each journey. Attention is also paid in designing the shape of specific packages, thus maximising space to achieve full loads.

There are certainly still many obstacles to overcome. For example, the transportation of fragile goods such as large domestic appliances needs very strong and resilient packaging to protect against impact, vibration and compressive stresses. The most commonly used packaging for this purpose is expanded polystyrene, which can be recovered to be crushed and reused, but currently the recovery rate is low, resulting in the potential for land and ocean pollution. Against the cost to the planet of such pollution, under present circumstances it's necessary to offset the costs that would be involved in less effective packaging, resulting in damaged products and wasted journeys, a whole chain of carbon emissions for nothing.

→ OPEN LINK

New ways to pack

Plant-based:
this is made from biological sources — everything from mushrooms and seaweed to corn and food waste.

Edible:
this also comes from biological sources, going one step further by being safe to eat!

Plantable:
these have seeds embedded in them, a fun idea for customers. They work well for containing small, lightweight items such as cosmetics or jewellery, and can also be used as fillers or product wraps.

Compostable and biodegradable plastic alternatives:
these are made out of materials that can be composted at home and commercially. They're often made from plant-based polymer that can break down in compost.

The basic idea of packaging is not just to appeal to the consumer, but at the same time ensure that the content inside is intact. Sustainable packaging materials are made up of products that are recyclable and reusable, but they may not be as efficient as plastic and other thicker packaging materials that ensure product safety.

infiniti research

Simplifying and clarifying

Work towards creating **monotype plastic bottles** for cosmetics and household liquids is urgently underway, as currently the presence of different types of plastic in the bottle itself, the lid and the label makes recycling difficult. Manufacturers and distributors usually have clearly defined responsibilities for the recycling and disposal of packaging, but clear **labelling** of packaging for consumers on to how to recycle is an important area for improvement, and depends on interventions by legislators. So while we rely on our governments, scientists and agencies to push hard and fast for important lasting solutions to these complex problems, let's keep the following in mind for our own day to day 'packaging' lives...

There is no such thing as 'away'. When we throw anything away, it must go somewhere.

Annie Leonard

OUR CARBON NEUTRAL FUTURE

“If we fail to cope with this challenge, all the other problems will pale into insignificance.”

H.M. Queen Elizabeth II,
quoting her late husband the Duke of Edinburgh,
in her welcome address to Cop26 delegates in Glasgow

Today we frequently hear the terms ‘carbon neutral’ and net-zero emissions, but how many of us know what they actually mean? And why are they so important?

In simple terms, **carbon neutral** means that any carbon dioxide (CO2) released into the atmosphere from the activities of individuals or a company is balanced by an equivalent amount being removed. **Net-Zero carbon** emissions mean that an activity releases no carbon emissions into the atmosphere.

With the urgent struggle on hand to cut greenhouse gases that are causing a dangerous rise in global temperatures, governments, agencies, companies and individuals are increasingly looking for ways to reduce or offset their carbon footprint. Wholly achieving this is currently a hard ask, but governments and energy agencies are setting targets and implementing actions to encourage or force people to move towards carbon neutral and net-zero in certain sectors within challenging timeframes.

> The world has a viable pathway to building a global energy sector with net-zero emissions in 2050, but it is narrow and requires an unprecedented transformation of how energy is produced, transported and used globally.

IEA Report, May 2021

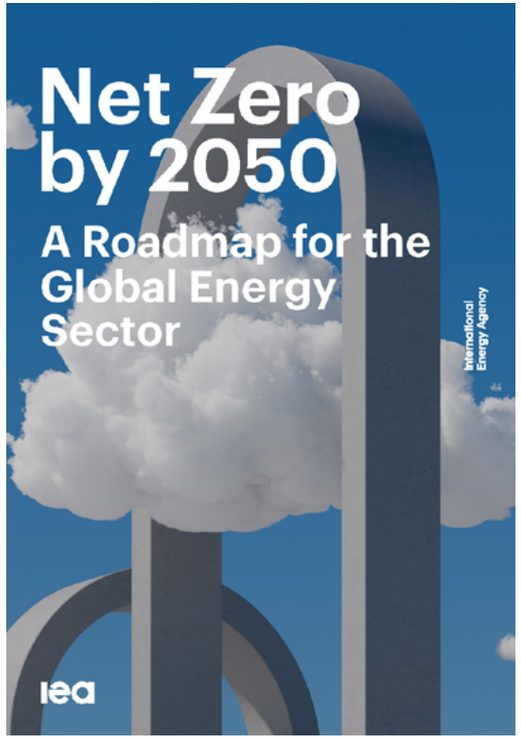
Technology

The Net Zero by 2050 Report by the International Energy Agency underlined that the technology needed to reach net zero is readily achievable. Fatih Birol, the IEA Executive Director said: “These technologies are already invented, but not yet in full development. Innovation is critical, but the technologies are here with us.”

The crucial new technologies in development are advanced batteries, particularly for use in electric vehicles; hydrogen; and carbon capture. The last of these refers to the process of capturing and storing CO2 before it is released into the atmosphere.

Policy

Just one example. At the World Economic Forum in July 2021, ahead of the COP26 meeting in Glasgow in November, EU policymakers outlined ideas on how the bloc’s countries can reduce net greenhouse gas emissions by 55% from 1990 levels by 2030, a step towards net zero emissions by 2050. Tighter emission limits for cars will in



www.iea.org/reports/net-zero-by-2050

effect end new petrol and diesel car sales in the EU by 2035.
Some individual governments are setting even tighter deadlines, with the UK, Germany, Ireland and the Netherlands on course to ban the sale of new cars and vans powered entirely by petrol and diesel by 2030, and Norway even sooner in 2025.

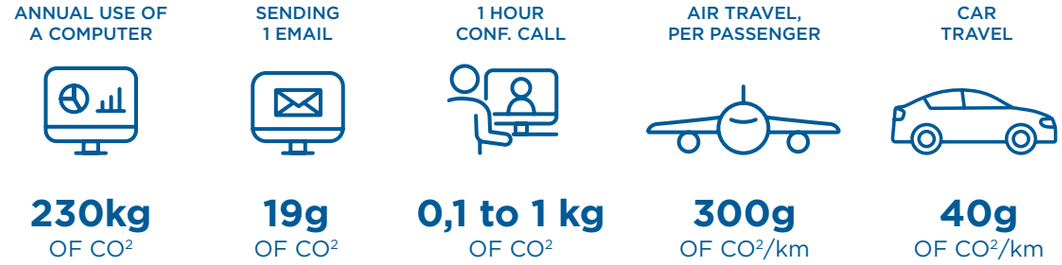
Companies

Even looking at everyday activities can bring some surprises when calculating a company's carbon footprint. Using a computer, organising a conference call, or even simply sending an email all add up. It's been calculated that, by 2040, 14% of all greenhouse gases emissions will be due to our digital activities.

While many companies now are doing their best to reduce their harmful carbon emitting activities by detailed measurement and reorganisation, some emissions are impossible to eliminate, the so-called "irreducible emissions". These need to be dealt with by making sure they are balanced out in some way.

Carbon credits

Once the impact of a company's activities, or of a single project, in terms of the quantity of CO2 produced, has been established, it can be balanced out by the acquisition of a corresponding number of "carbon credits".
Every carbon credit corresponds to 1 ton of CO2.



> Overall, becoming a carbon-neutralcountry would involve changes in our behaviour, but these are modest compared with the changes that will be forced upon us if we do nothing.
>
> Caroline Lucas, UK politician

The credits then fund projects that trap or remove carbon from the atmosphere, such as reforesting, rewilding wetlands, methane capture, creation of windfarms, the installation of solar energy or hydropower.

Individuals

And what can we as individuals do to live a more carbon neutral life? While the Covid19 pandemic has hugely reduced the opportunities for travel, and given the planet a short moment to breathe cleaner air, many of us are desperate to return to our old ways, both for business and for pleasure.

This is a good moment to think about our travel carbon footprint, and maybe reduce the number of times we fly, or find other less polluting ways to travel. And even small daily changes can make a massive difference: eating fewer animal products, shopping locally, driving less, and reducing your waste - it all adds up.

And let's face it, we all know that cutting the amount of time we spend in front of screens is good for our health. It's also good for the planet. The less energy we use, the less carbon gets boosted into the atmosphere.

THE MULTIPLE REINCARNATIONS OF THE DOMESTIC REFRIGERATOR

An interview with Fabrizio Longoni, general director of Centro di Coordinamento RAEE.

After a lifetime spent at the service of your everyday sustenance, in the not-so-sad moment of its passing, we take a look a what happens to your fridge once its been taken away as scrap by the guys who just delivered your brand new Combi.

We asked Fabrizio Longoni, director general of CDC (Centro di Coordinamento RAEE, Italian clearinghouse organisation for the collection and disposal of electric and electronic waste), to help us assemble the disassembly case.

What's the principal objective of the end-of-life processing of our appliances?
Let's have a look at the lifecycle of our appliances: we're talking about, in turn, the development of an original idea, the designing of the product, its manufacturing, transport, delivery, usage and subsequently, when the product becomes "waste", its dismantling and disposal in what can be described as a second industrial phase, and one that is particularly complicated, too. This final stage in a product's life has two principal objectives: avoiding the contamination of the environment in the first place, and recycling the materials it's made of in the second place.

What's so complicated about taking apart an old appliance?
While building a refrigerator on an industrial basis is a complex but straightforward process, de-building it, on the contrary, is quite complicated. In the production phase, we are dealing with standardised raw materials for standardised processes, while the reverse process, or "de-production", deals with a variety of models, production years and types of materials, with the objective to obtain usable raw-materials, the so-called secondary raw-materials. This is relatively easily done with metals - scrap yards have been around forever - but becomes a lot more complicated when it comes to all the other types of materials that are involved in the manufacturing of your fridge. After all, it was originally designed and built to preserve food in the best possible way, and less as a

future provider of pure-grade secondary raw-materials.

What should the ideal, virtuous appliance look like?
Ideally, we would like an appliance to be 100% recyclable, and that the costs involved in recycling it in its entirety, both financially but also in terms of labour, be as sustainable as possible. It's very simple, if the commercial value of these secondary raw-materials is less than what it costs us to extract them from a scrap refrigerator, we probably

“

While building a refrigerator on an industrial basis is a complex but straightforward process, de-building it, on the contrary, is quite complicated.

Fabrizio Longoni

won’t bother doing it, unless someone makes us. Inversely, if the materials extracted are highly valuable and can be turned into cash quite rapidly, these scrap products will be snapped up in no time.

What recommendations would you make to designers and manufacturers?
If there’s one pledge to be made, it would have to be to make simple disassembly and easy recovery of raw-materials part of the design. Moreover, the costs associated to these operations should be taken into account, alongside traditional costs of production, when calculating the total cost of a product, and eventually reflect on its retail price.

“The financial and environmental opportunity cost of building a product that is not taking disassembly and recycling into account might turn out to be higher than the savings we can obtain from not investing in the engineering and design efforts to build a virtuous appliance.”

So, do designers talk to those in charge of dismantling their creations?
The difficulty is that people who today are working on disassembly and recycling, are dealing with the product of someone’s work from 15 or 20 years ago. There’s a delay in time, so dialogue is virtually impossible. The real question is “how good is today’s designer at foreseeing what will happen in 20 years time?”. The way we build appliances, the materials we employ, do evolve over time, often by small incremental steps, but at times through significant innovation. All this should be taken into account when designing new products.

Would using more metal and less plastics be helpful in some way?
Certainly. The types of plastic that we used some years ago cannot simply be employed today. Nowadays, we are able to better assess the environmental impact of these types of polymers. We wouldn’t be allowed to use them for the same purposes. While metals can be recycled more or less infinite times and used in exactly the same way, plastics

are far more problematic and become obsolete quite rapidly.

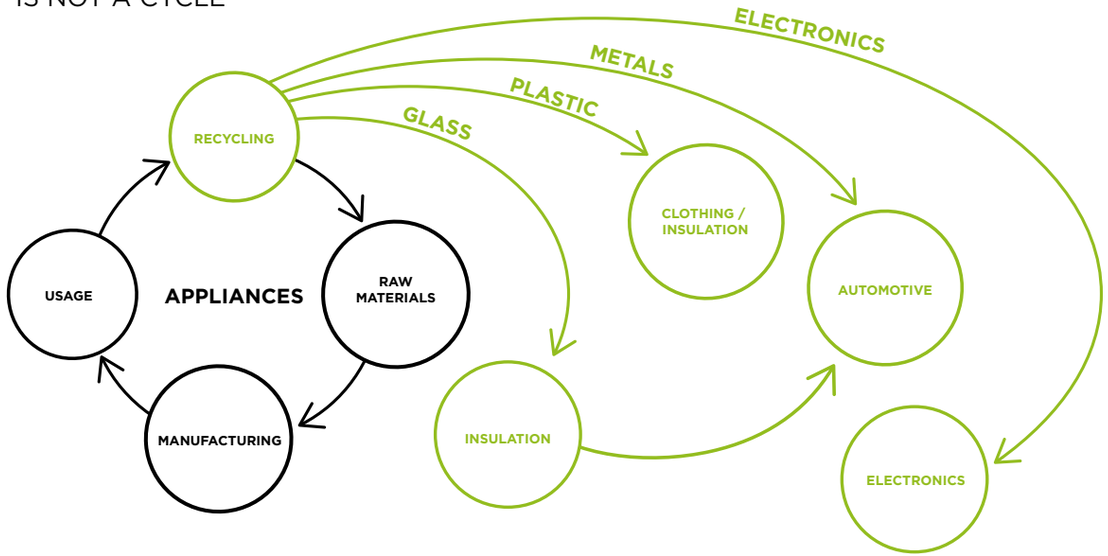
How does easy-disassembly of the various components affect the recyclability of a product?
The ultimate goal of the industrial recycling phase is to obtain usable, homogeneous raw-materials, so the easier it is to separate them the better. For what concerns cooling appliances, there are some operations that need to be performed in the first place, starting with making the products “safe”. In particular the compressor and the serpentine must be emptied of all the oil and gases and separated from the rest of the appliance, which is anyway made of a multiplicity of components. The electronics alone are quite intricate and made up of a myriad of elements. The insulation represents a further problem, as it adheres quite strongly to the panels, and contains different types of gases, including pentane, which is highly flammable. Expanding polyurethane with gases such as pentane is easy and cheap when producing the appliance, but it becomes an issue when it comes to its dismantling. Even modern day state-of-the-art insulation represented by VIP Vacuum Insulated Panels do pose some problems for their core is made of either glass fibre or silica. Working in a standardised environment with standardised products and procedures is relatively easy and safe, while having to do with a variety of products of all shapes, ages, and production methods is a completely different ball game.

What about LED lighting, does that make a difference?
It certainly does, but less in terms of energy savings than on the health and safety front which heavily impacts the cost of disposal. Traditional light bulbs contain tungsten, which prevents them from being easily recycled as glass, since it will seriously damage glass foundry furnaces. Even energy-saving fluorescent lights pose a problem since they produce light through a chemical reaction involving mercury vapour. These can represent a serious contamination and health hazard in the disassembly phase. LED lights, in that sense, are much easier to treat, without any risk, and therefore are cheaper to recycle.

What happens to the electronics?
Nowadays there’s an increasing quantity of electronic components in our appliances. A typical motherboard is made up of a very large number of elements, each in very small quantities. These components are simply set aside and dealt with by specialised facilities. There are a few in Europe, but Japan is highly specialised in this field and is literally importing scrap electronic components to extract the rare and valuable elements they contain and re-inject them in the production cycle.

Cooling appliances also contain gases...
That’s correct, and similarly to plastic, we have developed and used many types of gases over time. Recycling facilities need to be prepared and equipped to deal with each possible kind of product, some are not legal to use in today’s appliances, with the objective to avoid contamination of the environment.

THE CYCLE THAT IS NOT A CYCLE



At the moment, the geographical areas with the highest quantities of “old” gases in their discarded appliances are Northern European countries or regions with cold climates. Southern Europe or warmer regions have already disposed of almost an entire generation of products containing such gases since cooling appliances tend to have a shorter lifespan in hot climates. Let’s also remember that gases are not only contained in the compressor-serpentine system, but also in the insulating materials, from which they need to be “squeezed out”.

How much of the recycled materials end up in new appliances?

Apart from steel and copper, which can subsequently also be employed in any industry as a pure-grade material, not much, really, since the industry tends to work on highly standardised processes that depend on standardised raw-

“

The financial and environmental opportunity cost of building a product that is not taking disassembly and recycling into account might turn out to be higher than the savings we can obtain from not investing in the engineering and design efforts to build a virtuous appliance

Fabrizio Longoni

51

materials. But that's not the point, since the purpose of recycling is that these materials do have a new life of some sort. If glass coming from the shelves of a refrigerator cannot be employed in the same role again, perhaps because of unsightly impurities, it may end up as glass fibre in some kind of insulation. Similarly, the shiny transparent plastic of balconies, the immaculate inner lining of the cavity, may find a new life in pile garments or even as an appliance's chassis.

How much does it cost to recycle a fridge?

It's hard to tell precisely since we are dealing with an immense variety of models, sizes, shapes, materials and technologies. The current average figure agreed upon in the industry is around 4% of the cost of production, if we don't consider collection costs from consumer homes to centralised collection points. Even so, logistics still represents the largest part of such cost. With respect to the production, distribution and delivery phases in a product's lifecycle, dismantling and recycling demand a "reverse logistics" approach, whereas, instead of shipping a multitude of products from one single facility to a number of distributors, then to retailers and eventually to consumers, here we are doing the exact contrary: we are collecting products from a multitude of locations and shipping them to a single facility. These products are not even the same size or weight, so you have no way of optimising your transport, hence the heavy impact on costs.

As we kiss good bye to our trusted double-door on its way to a new life, we might be saddened by the fact that we probably won't see it again in our kitchens, but comforted by learning that, in a not-so-distant future, we might be wearing it instead, or keep warm thanks to it, or even drive it! What's important is that it won't end up in a landfill, our oceans or even worse, our atmosphere. In that, designers have a very important role to play in making sure our appliances are ever more recyclable and kind to our planet.

→ www.cdcraee.it

Jake, 8 years old, talking to his Grandma about the fridge of the future

What's your favourite food now, Jake?

Dough balls!

Dough balls! What do you like about them?

They're crispy on the outside and soft on the inside.

And what are they like before they're cooked?

They're soft on the outside and the inside.

What else do you like to eat?

Pizza!

Ah yes, you've made pizza, haven't you? What's your favourite part about making pizza?

I like putting the topping on.

And what's your favourite topping?

Cheese! We had pizza for dinner yesterday evening.

I've seen you doing other things to help prepare the dinner. What do you like to do?

I like peeling and cutting up carrots. And cutting broccoli. It sounds nice when you chop through it. And I like eating it!

I heard you having a conversation with your dad about why it's important to eat healthy food. Can you tell me why that's important?

Because it keeps you fit, and it keeps you healthy so you can live a long life.

Yes! And it gives you lots of energy, doesn't it? Why do you need loads of energy?

Ummm....

What your favourite thing in the world?

Football! Yeah, I need loads of energy for that!

Here's another question for you. Which of the kitchen appliances do you think is the most important? I think the fridge, because it keeps all your food stored and it keeps it cold.

Yeah, and what would happen to it if you didn't manage to keep it stored and cold?

It would go out of date very quickly.

Do you know what I've seen sometimes when I'm at your house? Is you searching for things in the fridge for absolutely ages with the door wide open. What do you think happens then?

Umm... the food gets warm.

It would be good if there was some way of reminding you to close the door quicker!

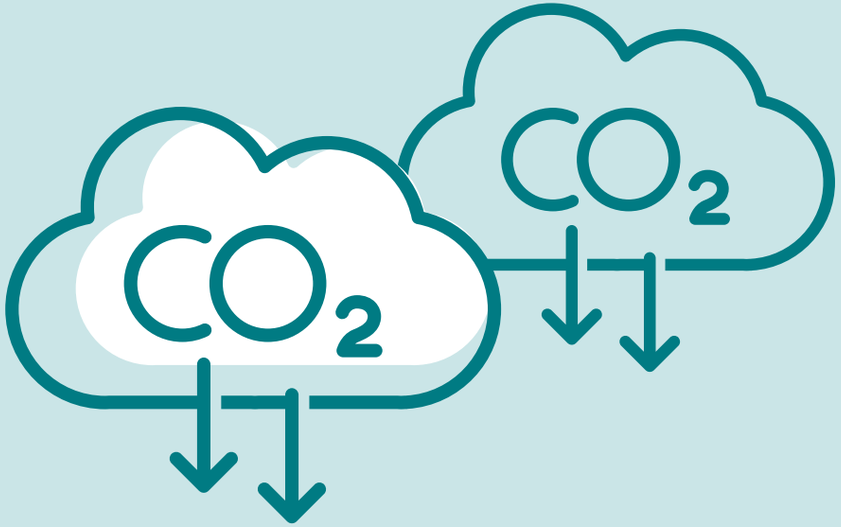
Yeah... find the food quicker... close it!

Okay, now can you imagine the future... what might be an amazing idea to have in the kitchen of the future?

I think, umm, you could have your own fridge, and it would be hidden away, and it would only have your own things in it, and when you wanted something, you would just say "I'm going to eat something" and the fridge would appear, and you could get your stuff, and no-one else would know where it was!

CUTTING CARBON: TOP DOWN OR BOTTOM UP?

How do we win the global war on carbon emissions? Top down, governments and organisations are attacking this crisis through legislation, economic incentives, community cooperation and information campaigns. And bottom up, individuals and communities are coming up with great ideas.



First of all, let's take a quick spin around the globe to see how top down initiatives are making a difference.

Energy

According to the International Energy Agency (IEA) Sustainable Development Scenario, energy efficiency represents more than 40% of the emissions abatement we need by 2040. While many climate activists insist that current and planned legislative solutions to tackle this are not radical enough, governments around the world are starting or continuing to combine regulation and incentives to transform city transport systems, improve the energy efficiency of private and public housing stock, and incentivise carbon

→ OPEN LINK

neutral or net zero industry innovation. They are driving changes in consumer behaviour by legislation, such as the phasing out of fossil fuel powered vehicles, together with information campaigns and incentives to facilitate these changes.

Agriculture

The conundrum facing organisations and governments is how to overhaul food systems and intervene to move agriculture away from carbon-emitting, heavily subsidised, highly industrialised farming methods, towards systems that are less polluting and provide healthy accessible food to the entire global population.

A report published in September 2021 by the Food and Agriculture Organisation (FAO), the UN Development Programme (UNDP) and the UN Environment Programme (UNEP) claims that almost 90% of the $540bn in global subsidies given to farmers every year are "harmful".

→ OPEN LINK

Joy Kim, at UNEP, said: "Agriculture contributes a quarter of greenhouse gas emissions, 70% of biodiversity loss and 80% of deforestation." The biggest sources of greenhouse gas emissions, such as beef and milk, received the biggest subsidies, the report said. These are often produced by large industrialised groups that are best placed to gain access to subsidies.

In an example of legislative response to such concerns, in November 2021, the European Parliament approved the biggest reform of EU farm subsidies in decades. The new Common Agricultural Policy (CAP) rules, which will apply from 2023, aim to shift money from intensive farming practices to protecting nature, and reduce the 10% of EU greenhouse gases emitted by agriculture.

The reform will require that 20% of payments to farmers from 2023-2024 be spent on "eco-schemes", rising to 25% of payments in 2025-2027.

At least 10% of CAP funds will go to smaller farms and all farmers' payments would be tied to complying with environmental rules.

"

The greatest threat to our planet is the belief that someone else will save it.

Robert Swan,
adventurer and environmentalist

Bottom up

Top down is needed, but what about bottom up initiatives? When governments and authorities provide incentives, companies and individuals are spurred on to innovative ideas and new partnerships and behaviours. Let's look at some examples.

Innovative housing refurbishment

In November 2019 in Berlin, the Dena Energy Transition Congress marked the completion of the Energiesprong Volume Deal – in which twenty-two housing companies joined forces to renovate over 10,000 apartments in a climate-friendly and socially responsible manner over the following four years.

Video frame credit: energiesprong.org

The Energiesprong serial retrofit solution is a digitised and industrialised building process with prefabricated elements that can be used to refurbish buildings in a way that is fast, climate-friendly and tenant-friendly.

Energiesprong works internationally and attracts funding through several European projects and through philanthropy.

Sustainable Scotch whisky

Bruichladdich is a malt whisky distillery on the Scottish island of Islay. Like its neighbouring distilleries, and many more of Scotland's 134 whisky producers, it relies on fuel oil, brought in on diesel-powered ferries, to fire the boilers. Islay's nine distilleries burn 15m litres of oil each year.

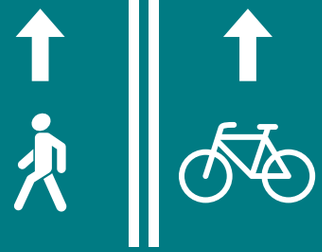
But now the company has challenged itself to reach net zero in its distillation process by 2025. It hopes to pioneer the use of an innovative type of green hydrogen production using green electricity and water electrolysis. For now it is depending on a green tariff, but it plans to use wind and tidal renewables to be installed around the island over the next few years.

The hydrogen production technique destined for testing at Bruichladdich has been designed by Protium, a London-based energy firm, with £74,000 in development funding from the UK government, using a US technology. The UK government has set aside £10m for research on helping the UK's whisky and spirits industries go net zero.

Cycling around our cities

The Covid19 pandemic has been a huge game-changer in terms of people's desire to be outside in the fresh air, for safety and for health. As public transport systems closed down or felt unsafe to use, cities around the globe saw a massive rise in demand for safe ways to cycle. This had been a trend pre-pandemic, but the crisis brought about a rapid rise in demand from citizens and solutions from authorities.

So here's a toast, to every project, big or small... none is too small to be unimportant.



Around the globe, between March and July 2020, 394 cities, states and countries reallocated spaces for people to cycle and walk more easily, efficiently and safely.

Slovenia's capital, Ljubljana, has been redesigning its city centre to accommodate car-free zones and encourage pedestrians and cyclists since 2007. Since then, there has been a steady increase in pedestrian and cyclist footfall, while carbon dioxide emissions have dropped by 70% and noise has dropped by an average 6 decibels.

CITIES: URBAN HELL OR HEAVEN ON EARTH?

> Typically we don't think of cities as being particularly extreme environments, but few places on earth get as hot as a rooftop or as dry as the corner of a heated living room

Adam Rogers, science writer

Over half of the world's population now lives in cities, a figure expected to rise to nearly 70 percent by 2050. Cities cover only about 3 percent of the planet's land, yet they are responsible for 70 percent of global waste, consume almost 80 percent of the world's energy, and produce around 72% of its greenhouse gas emissions. Around the world, from radical new economic models to innovative ideas deriving from citizens, solutions are being discussed and implemented to make the urban environment more green and habitable, reduce air pollution, and grow and deliver better quality food more efficiently.

Policy and planning

• The United Nations Food and Agriculture Organisation (FAO) Green Cities initiative focuses on promoting innovation for resilient green spaces and sustainable urban agriculture for large, medium and small cities in the developing world.

• The European Commission has agreed on the European Green Deal that aims for a climate-neutral economy by 2050. The deal will promote and showcase 100 European cities to make a systemic transformation towards climate neutrality by 2030, and to make these cities experimentation and innovation hubs for all European cities in the run up to 2050,

• In the United States, The Greening America's Communities Program, helps cities and towns develop an implementable vision of environmentally friendly neighborhoods that incorporate innovative green infrastructure and other sustainable design strategies.

• A 2015 report from the Asian Development Bank states that by 2025, there will be 21 megacities in Asia. → OPEN LINK

Already in the poorest of existing cities, infrastructure supply lags behind demand, and basic public services such as water connections and solid waste disposal do not reach the majority. In addition, many residents live on marginal lands where they face risks from flooding, disease and other shocks.

The Asian Development Bank report outlines steps to:

- develop cities that recycle, manage waste in innovative ways and use renewable energy resources.
- include mechanisms for people to affect the decisions being made about how their city is developed and managed.
- build in resilience to disasters and other shocks
- plan city developments that incorporate cultural heritage and history
- develop green space and walkability, moving away from vehicle centred spaces

Colombia

In Medellin, Colombia, the FAO has supported the departments of Nariño, Antioquia and Boyacá to build community gardens. More than 7 500 families have benefitted from these gardens, allowing them to grow their own food with the possibility of selling the surplus.

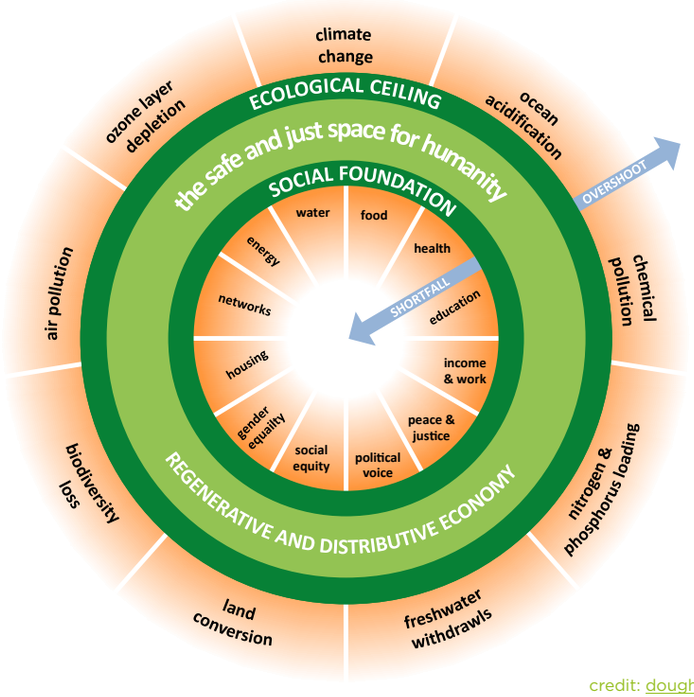
The Netherlands

In April 2020, the municipality of Amsterdam formally adopted a radical new economic model as the starting point for public policy decisions, the first city in the world to make such a commitment. The central premise of the so-called 'doughnut model' devised by British economist Kate Raworth, is that the goal of economic activity should be about meeting the core needs of all, but within the means of the planet. Rather than aiming for never-ending growth, the emphasis is on thriving with an inter-connected and balanced wellbeing across all areas, from the individual to the planet.

With a housing crisis to manage,

Amsterdam aims to use the model as it makes future planning and building decisions, and more widely, in all areas of future development and investment choices.

Also in The Netherlands, a simple but incredibly effective way of re-greening has been dreamt up. In the



credit: doughnuteconomics.org

Amsterdamse Bos, a forest on the outskirts of the Dutch capital, volunteers have collected thousands of saplings cleared from woodland paths, and have transplanted them to a local tree hub. From there they can be given away free to farmers, councils and landowners.

This circular forest management saves trees that would otherwise be discarded and contributes to the ambitious Dutch tree-planting target of 37,000 hectares, about 100m trees. There are plans to scale the scheme up.

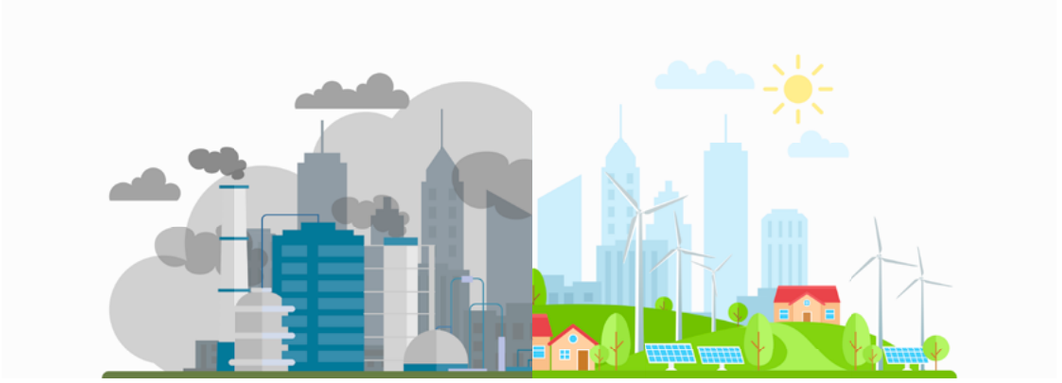
Italy

Milan has a target of 3 million trees planted by 2030. This approximately 30 percent increase in the city's trees has the potential to absorb 5 million tons of carbon dioxide every year while reducing PM10 small particles by 3,000 tons in the next eight years. This pollutant is responsible for respiratory disorders and has been linked to higher risks of cancer. And with the arrival of Covid19, the need for clean fresh air has become even more urgent.

The city authorities plan 20 new urban parks, while extending existing ones and transforming areas such as an abandoned freight railway network. Trees will also be planted in more than 2,000 schoolyards and in private gardens, and greenery will be also planted on flat rooftops, with 10 million square meters already fit for the project.

The most eye-catching and famous of Milan's re-greening efforts is architect Stefano Boeri's Vertical Forest, two residential tower blocks in the city centre featuring 800 trees, 15,000 plants and 4,500 shrubs covering every balcony. Since their construction in 2014, the towers have attracted more than 20 species of birds and can absorb 30 metric tons of carbon dioxide every year.

> As our cities grow, so does our need for ingenious solutions to turn them from hell to heaven, from urban jungle to healthy, clean communities, able to sustain themselves and the planet, while providing a thriving future for new generations.



GETTING SMART FOR THE CLIMATE

Have you ever thought about what materials go into making your Smartphone so smart?

There is a surprisingly large mix of metals in any given smartphone, from copper, silver and gold for conductivity, to indium-tin oxide for touch screens, to lithium for the batteries, through a whole array of rare earth metals (REEs) bringing colour, clarity and sound to your devices.

These precious ingredients, defined as Critical Raw Materials (CRMs), are not only used for these vital accompaniments to our daily lives, but also in the clean green technologies that are crucial for moving to a carbon neutral or net zero society as we tackle climate change.
For example, lithium also powers the batteries of electric vehicles, platinum integrates the production cycle of green hydrogen, and silicon is used in the production of photovoltaic panels.

So how and from where are these CRMs obtained? Many of them are mined in countries with the potential to become unstable politically, where the rights of indigeneous groups and their traditional environment can clash with the industry, where there may be few workers' rights in the mines, or where the supply chain is long and complex from mine to manufacture.
These factors have resulted in various ongoing actions by the European Commission (EC) to reduce Europe's CRM dependency on third countries, diversifying supply from both primary

26	27	14	47	79	60	29	59
Fe	Co	Si	Ag	Au	Nd	Cu	Pr
Iron	Cobalt	Silicon	Silver	Gold	Neodymium	Copper	Praseodymium
55,845	58,933194	28,085	107,8682	196,966569	144,242	63,546	140,90766

To discover just what it was made of, University of Plymouth scientists threw a smartphone into a blender. Analyzing the dust, the researchers found everyday metals such as iron and silicon, as well as rarer metals such as cobalt, and rare earth elements such as neodymium (160 milligrams/0.00565 ounces) and praseodymium (30mg/0.00106oz).
The experiment showed that the phone contained roughly 90mg/ 0.00318oz of silver and 36mg/0.00127oz of gold. That equals roughly 4.3 million oz of silver and 1.7 million oz of gold in the 1.5 billion smartphones produced each year.

www.plymouth.ac.uk/news/scientists-use-a-blender-to-reveal-whats-in-our-smartphones

and secondary sources and improving resource efficiency and circularity, while promoting responsible sourcing worldwide.

In September 2020, as the EC presented its Action Plan on Critical Raw Materials, Maroš Šefčovič, Vice-President for Inter-institutional Relations and Foresight said: **“A secure and sustainable supply of raw materials is a prerequisite for a resilient economy. For e-car batteries and energy storage alone, Europe will for instance need up to 18 times more lithium by 2030 and up to 60 times more by 2050. … we cannot allow ourselves to replace current reliance on fossil fuels with dependency on critical raw materials. This has been magnified by the coronavirus disruptions in our strategic value chains. We will therefore build a strong alliance to collectively shift from high dependency to diversified, sustainable and socially-responsible sourcing, circularity and innovation”.**

→ OPEN LINK

What does this mean in practice? Currently, EU countries only supply small amounts of key critical raw materials needed in strategic sectors like wind power, batteries, robotics and photovoltaic. Giving a greater push to the recovery of CRM from electronic devices is one important solution, but in the words of Hildegard Bentele, Member of European Parliament (MEP) and author of the Report on the European Strategy for Critical Raw Materials, “There is no doubt about the potential of recycling and other elements of the circular economy. But let’s not turn a blind eye to the continuing need for primary raw materials. Sustainable sourcing in the EU is part of the solution.”

To meet this need for sustainable sourcing, among other actions, the EC:
- has established a European Raw Materials Alliance to bring together all relevant stakeholders
- is working with Member States and regions to identify mining and processing projects in the EU that can be operational by 2025. A special focus will be on coal-mining regions and other regions in transition, with special attention to expertise and skills relevant for mining, extraction and processing of raw materials
- will promote the use of its earth-observation programme Copernicus to improve resource exploration, operations and post-closure environmental management.

And what about recycling? A recent statement by European People’s Party MEPs said “The industrial processes of recycling of critical raw materials still require substantial investments in collection and recovery infrastructures, in innovation and in the expansion of technologies, as well as in skills…,” while noting that the national plans of EU states did not adequately meet these requirements. With the notable exception of Italy, whose National Plan of Recovery and Resilience provides 150 million euro for the financing of innovative systems for the recovery of CRMs from discarded electric and electronic devices.

So what can we do to help?

Research by UK campaign group Material Focus estimated that in 2021 5m unwanted electrical items would be thrown away or hoarded after being supplanted by purchases made between Black Friday and Christmas.
The estimates, based on a survey of 2,000 adults, point to at least 2.7m older unwanted electrical items being sent to landfill and a further 2.2m being forgotten at home.
Britain’s e-waste problem is likely to be replicated worldwide, with analysts estimating that millions of new mobile phones would be bought in the wake of Black Friday, spurred by the latest iPhone launch.
So if you have to buy a new device, look for somewhere to donate the old one. Find out what the electronics recycling situation is like where you live, and speak to the authorities if it’s not adequate. And search round in the drawers for those old phones – who knows how much silver and gold you’re hoarding!

www.recycleyourelectricals.org.uk/press-releases/why-its-time-for-give-back-january-5-million-unwanted-electrical-items-with-a-donation-value-of-almost-160-million-are-thrown-away-or-hoarded-in-the-new-year/

THE GREEN EYE OF THE DESIGNER

Patrizio Cionfoli, director of design and interaction at Studio Volpi, shares his perspective on how the climate change debate is influencing the way household appliances are designed.

How did the designer's job change over the past few years, in the light of the public's growing sensitivity towards environmental issues?
There have been changes in technology, but also cultural and lifestyle changes. Instead of an ever increasing level of globalisation, we have been witnessing the return to a more local outlook in terms of design. We now have different approaches when it comes to designing products for the different regions. We have changed the way we design products compared to twenty years ago, when globalisation was a must. Also, nowadays, green issues drive the development of new products. It all depends on what we can achieve with the help of technology. For starters it can help us design more energy-efficient appliances, but it can also guide consumers in using them more effectively and, in the case of refrigerators, minimise food waste by prolonging the "window of opportunity" for food to be used before it spoils.

Appliance-technology has also learned to adapt to different types of user profiles, be they beginners, intermediate of proficient. This advanced personalisation further helps consumers in using their appliances in the best possible way. A lot of attention is also paid to the types of materials used in the manufacturing of any new product. In the past these aspects tended to be overlooked, and some of the materials used at the time wouldn't be considered acceptable today in the light of our current environmental policies. We must not generalise, though, and must not think that, say, all plastic should be banned. Single-use, disposable items like the plastic bottles that get thrown away just about anywhere are the real villains here. We have to consider the entire lifecycle of appliances, and make

sure we can recycle as much of their components as we can, including the high-quality plastic they contain, which can greatly contribute to this virtuous circle. This changed the way we design appliances, since we now plan for their recycling right from the drawing board.

“

Today, the designer is an agent of cultural change within an organisation

Patrizio Cionfoli

Can the designer really make a difference?

The role of the designer will increasingly become that of an agent of cultural change within an organisation. By definition, designers work with their minds set onto the future, and what they're working on today will actually be on the market in a few years. Design goes well beyond the technical aspects of a product. Design-thinking is more of a cultural approach, and starts with identifying needs and challenges, and transforming them into opportunities. Eventually, these opportunities become real products, commonplace objects used by consumers around the world. The ultimate objective being, of course, making our lives better.

So was the change more a matter of technology-push, or was it demand-pulled?

Definitely demand-pulled. It's always the markets that give off signals that we need to interpret in order to identify consumers' needs. Consumers themselves often don't really precisely know what the actual solutions might be, as they generally express an undefined aspiration or simply raise an issue, so it's up to us to come up with an answer. Technology, far from creating or pushing a need, is an enabler. It helps us define the most appropriate response to the latent needs. When it comes to environmental issues, if a few years ago a company could get away with greenwash, i.e. talking green but doing very little about it, nowadays social media have made it virtually impossible, as any inappropriate behaviour, or simply the non-respect of sustainability promises, will inevitably and quite rapidly be exposed. Any claim about a company's sustainability or green practices can be almost instantly checked. If on one hand this greatly discouraged greenwash, on the other hand it encouraged companies to be more open and do more about sustainability in terms of processes and products.

What about refrigerators? Have they changed over the past years? They

“Consumers are still confused about what food items should be kept in the fridge, and which ones should stay out.”

seem to have taken on an important social role in consumers’ lives. How does that reflect in the way they are designed?

In the 1980’s consumers would tend to buy food supplies that would last, on average, for several weeks. Refrigerators and freezers were bulk storage devices. Since then, consumption patterns have progressively and steadily evolved towards more frequent shopping trips, with more and more fresh produce. Today, refrigerators reflect this generalised trend. What we’re still missing is the knowledge, on the part of consumers, of how to properly store food, what food items should be kept in the fridge and which ones are better be left out of it. So much so there is talk of designing smart refrigerator shelves that would help consumers stock up in the right way, with every product in its place. One of the effects of lockdown was that people started using online shopping and delivery services like never before, since they could not physically travel long distances to go shopping at their usual center stores. As a result, shopping frequency increased, but so have trips to proximity, smaller food stores, to the extent that many people have now taken to shopping on a daily basis from local mom and pop style grocery stores.

In the light of these emerging shopping habits, one would expect the size of refrigerators to shrink, since there is no longer a need for all that storage space. On the contrary, demand for large fridge-freezers is on the upside. An apparent paradox, since the size of houses also tends to be on a downward trend. In fact, it is the new cultural and social role the refrigerator has taken on as a status symbol that explains the high demand for extra large appliances. Cooking is now a central part of our social life and the fridge is the centrepiece of every kitchen, hence the importance of size, and also of aesthetics and detailing. In the future, awareness about correct food preservation practices might bring about a new type of appliance, something halfway between a wine cellar and a larder, where we would keep fresh produce needing a cool and dry storage place away from direct sunlight. In the meanwhile, we might as well start re-thinking the way we stock our fridge, as we may have done it wrong our whole life!

→ www.studiovolpi.com

DO'S AND DON'TS OF THE FRIDGE

While industry can achieve a lot in terms of sustainability, the last mile is entirely up to consumers, and the way they use appliances in their own homes.

Using a refrigerator would seem to be the easiest and most natural thing in the world to the vast majority of us. Yet a conscious and at times different use of the most important appliance in our kitchens could help to make the difference for the environment.

Food waste and energy challenges

Waste and energy consumption are the two fronts the battle for fridge sustainability is fought on. The correct preservation of our food, in the sense of it not going off before we have a chance of consuming it, will help keep food waste down, and as a consequence we could be saving on the resources needed to produce it, like water, energy, soil and transportation. On the other hand, making sure our fridge doesn't consume too much energy will help save on carbon emissions.

Our fridge can serve as the pivot point of our domestic food waste and energy consumption reduction strategy. It all comes down to the way we load it and the way we manage fresh produce and leftovers.

Load the stuff right

When it comes to loading our shopping into the family fridge, we don't really think there's a right or wrong way of doing it, as long as it makes sense to us. But in fact it does make a difference. Placing the most used items at the front of the shelves, and also the most perishable ones, will help us "see" them better every time we open the fridge.

This will help us avoid spending ages searching with the door open, which would cause the motor to work harder to maintain temperature, consuming more electricity. Also, if perishable produce is hidden at the back, it might be too late once we finally realise it's been sitting there all that time, so having it constantly under our eyes might avoid it being thrown away.
The impact of food waste in terms of cost to the environment is simply mind boggling, and every little improvement can make a huge difference.
According to the European Food Information Council, in 2019 more than 930 million tonnes of food waste were generated, of which roughly 60% came from households.

→ OPEN LINK

Throwing away that single wrinkled tomato we forgot at the bottom of the fridge costs the environment about 125 litres of water and 300 g carbon emissions.
Wrapping certain items, or boxing them will help prolong their life, with better chances of us eating them before they spoil. Typically, cheeses should be wrapped in their specific paper, eggs, if at all kept in the fridge, should be left in their cartons to avoid picking up unwanted odours. Also, producers have developed differentiated temperature and humidity storage zones that are best adapted to different food types. Storing food correctly in these dedicated areas certainly helps better preserve it, greatly reducing waste.
A fair number of refrigerators produced in the world can't guarantee even temperatures throughout the cavity: temperatures at the bottom tend to be lower than those at the top, and door balconies also tend to be slightly warmer. Placing food items in the best position can help them last longer.
When freezing food, it should be put in sealed containers or tightly wrapped in cling film to avoid freezer burns, and labels with content and date of freezing should always be used. How many times have we thrown away mysterious frost-covered containers simply because we couldn't remember what was in them nor when we froze it?

Load the right stuff

We would be surprised to learn that some of the stuff we are used to keep in the fridge actually doesn't really need to be refrigerated, and in some cases would do better by staying out of it. Lists of what goes in and what stays out are common, and the debate around certain items is still open, but being more careful about what foods we keep in the fridge might help reduce the sheer volume of food stored, reducing the energy consumption to keep all that crowd refrigerated. And maybe, we might find out we don't really need such a big fridge, after all.

Here's a list of 10 food items that keep better outside the fridge

1. Potatoes:
cold turns starch into sugar, and we don't want that! When cooked, that sugar combines with other chemicals in the potatoes and produce unwanted acrylamide. Better store them somewhere dry and dark, unwashed (moisture can spark decay).

2. Tomatoes:
cold will stop them ripening. More importantly, temperatures below 5°C break the membranes inside the tomatoes.

3. Tropical fruit:
similarly to tomatoes, cold will stop them from ripening, and cause them surface damage on top of affecting their flavour.

4. Avocado:
surprisingly, avocados don't fare well inside a refrigerator. Like for other tropical fruit, cold will stop them from ripening. Unless we're having perfectly ripe avocados and we don't want them to become too soft, we better store them on the counter.

5. Onion:
onions tend to become mouldy and mushy if left in the fridge. They're better off in a dry place, away from sunlight to avoid them sprouting, and nowhere near potatoes, which give off moisture and gases that may spark decay.

6. Garlic:
if kept in the fridge, garlic will tend to discolour, and mould may grow underneath its skin.

7. Basil and fresh herbs:
the refrigerator will cause them to lose their aroma and flavour, and wilt prematurely. They're better kept like fresh flowers, on the counter, with some water to keep them moist.

8. Olive oil:
cold will condense and harden it.

9. Honey:
refrigeration will make it crystallise and make it difficult to spread. Honey can perfectly keep at room temperature for decades.

10. Coffee:
Not a good idea. Cold will bring out the moisture in the coffee, "de-powering" its aroma and flavour. It's best kept at room temperature, away from light in an airtight container.

What about eggs? The debate is still ongoing, but as a general rule, eggs sold in the US, Japan, Australia and Scandinavia are generally washed, and their shells aren't as protective as the European-style untreated ones. So US eggs can head for the fridge, while European ones can safely stay on the counter.

www.foodmatters.com

Plan a second life for your leftovers

Another way of fighting food waste is to plan for the recycling of potential leftovers. It can start with designing the original meal the ingredients are used for in such a way that any leftovers can be used in new recipes in the following days. It is also important that they are managed properly and not left indefinitely on the counter to collect heat and bacteria. "Day-after" cuisine is an increasingly popular trend and can bring many positive returns to its adepts. Italian traditional cuisine is based on the re-utilisation of leftovers from the family's rich Sunday lunch, generally consisting in a glorious pasta starter followed by roast or boiled meat: in the following days, the leftover meat would be used for meatballs, in a tomato sauce or fried; the same meat would also go into the stuffing of the some kind of tortellini or ravioli, or to make stuffed vegetables, together with rice, while the broth would make for wonderful risotto or zuppa; leftover roast poultry would make a wonderful cold salad; leftover pasta would be pimped up with any leftover cheese or cured meats, a little béchamel and become a delicious oven-baked "pasta al forno" ; in turn, leftover risotto can be sautéed the following day as a crisp version of itself.; bread can be turned into delicious bread pudding, or used as "mollica" in some pasta dishes as a cheese substitute.The variations are endless.

We must keep in mind that our refrigerator accounts for nearly 10% of our domestic electricity consumption, and that food loss and waste, if it was a country, would be the third biggest generator of greenhouse gas emissions in the world. (Source: European Food Information Council). The stakes are enormous, but we all have the power to make a difference, day after day, by making even small changes to our fridge routine. After all, saving the planet with our fridge can be entertaining, and quite satisfying.

Editor in chief:
Federico Rebaudo

Editorial coordination:
Studio Volpi srl

Contributing writers:
Pierre Ley, Elena Scandroglio, Eileen Robinson

Design & Layout:
Studio Volpi srl
Creative direction: Sergio Copetti
Art direction: Sara Marabini
Project coordination: Federico Gallina

March 2022

Homa

homa.cn
homaeurope.eu