

KAMP SOLUTIONS

FOR PEOPLE

AND PLANET

AMORY LOVINS

INTELLIGENT DESIGN
IS THE KEY TO
REVERSING GLOBAL
WARMING

JONATHAN FOLEY

CLIMATE CHANGE,
GAME OVER? HELL NO,
IT'S GAME ON!

FRANS OTTEN

LIFI: COMMUNICATION
AT THE SPEED OF LIGHT

JOSE GORBEA

SAVING ENERGY AND
WASTE WITH DIGITAL
PACKAGING

PETER BARNES

OURS:
CHANGING
THE RULES OF
CAPITALISM TO
PROTECT
UNIVERSAL
PROPERTY

This magazine is printed on
STONE PAPER
made from mining waste.

**NO TREES,
NO WATER**

It can be eternally recycled
SEE ARTICLE ON PAGE 1

#07 Fall 2021

THIS MAGAZINE IS PRINTED ON STONE PAPER

The magazine you hold in your hands presents a major innovation (if you are reading this on a screen, click here to upgrade your subscription to the print edition!). It provides a solution to some of the biggest environmental challenges people and planet face.

KAMP SOLUTIONS is made from mining waste. The production requires no trees and no water. It can be recycled forever. And it helps clean up polluted mining environments. Stone Paper offers a disruptive innovation: It can replace 50 percent of the world paper market. Stone Paper is made from 80 percent crushed mining waste 'glued' together with 20 percent high-density polyethylene (HDPE), a common plastic used for water bottles, etc. Stone Paper can be infinitely recycled because it is mineral based.

The global paper consumption exceeds 400 million tons per year. Half of that volume is used for packaging which can all be replaced with much environmentally friendlier—and cheaper!—Stone Paper corrugated cardboard.



HERE ARE SOME REASONS WHY STONE PAPER IS A GREAT SOLUTION

- According to some estimates, old growth forests make up some 15 percent of the virgin tree fiber used for making paper products.
- One ton of paper requires the logging of 20 trees.
- One sheet of paper requires 10 liters of water.
- Around 15 percent of the agricultural land in the world is used for tree farms.
- The paper industry is the 3rd most energy-intensive of all manufacturing industries in the world and uses 12 percent of the total energy consumed in global industry.
- The paper industry is also the 4th largest contributor of greenhouse gases.
- The Covid19 pandemic has only accelerated the trend of online shopping. By 2023, Ecommerce will make up more than 20 percent of global retail sales. Last year, US online sales already crossed that mark. Amazon, AliBaba, bol.com, Fedex, DHL, UPS, and many others need more boxes every day. All these boxes can be made from—better, more sustainable and cheaper—Stone Paper cardboard.
- For Stone Paper cardboard to capture 5 percent of the packaging market, we need to build 100 factories in the world.
- Mining waste lands can be converted and cleaned up, land used for production forests can be returned to regenerate nature and reverse global warming while rural communities can be rebuilt with new economic opportunities.



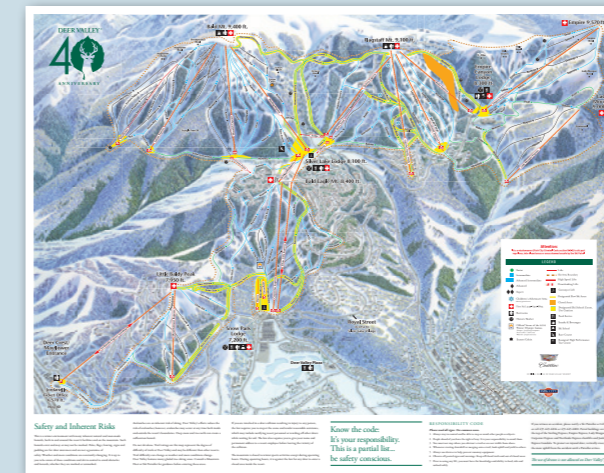
THERE ARE MANY APPLICATIONS WHERE STONE PAPER CAN REPLACE PULP PAPER AND/OR PLASTIC

AVIATION INDUSTRY

Stone Paper® is used to produce luggage tags, seat pocket safety cards, cabin menus, sick bags, as well as baggage claim tags. Next time when you board a flight checkout whether your airline already uses Stone Paper products. If not, show the crew your magazine and tell them the airline can save money and the plane shifting to Stone Paper materials. Note: Stone Paper seat pocket safety cards have been proven to have a much longer lifetime than cards made from pulp paper. This makes Stone Paper an even more attractive alternative for airlines.

MAPS & BROCHURES

How long do your ski maps last when you struggle with them on the lifts while you are figuring out your next run? Melting snow and pulp paper are not a good combination. After a few days you cannot see the layout of your resort clearly anymore. Waterproof and tear-resistant Stone Paper makes your map more durable offering a better consumer experience while saving precious resources. Of course, this applies to any map! And what about all these brochures in hotels and tourist destinations. We can save many trees and a lot of water!



Coming to you soon: Your online shopping delivered in infinitely recyclable Stone Paper cardboard boxes

STONE PAPER SOLUTIONS

NO TREES, NO WATER, 85% LESS ENERGY, 40% LESS CO2

PRODUCTION 1,000 KILOGRAMS	Virgin paper	Recycled paper	Stone paper
Wood use	2,700 kg	0	0
Trees cut	20	0	0
Energy use	19,315,100 btu	17,934,920 btu	2,968,563 btu
CO2 emission	1,500 kg	1,400 kg	600 kg
Water use	59,272 liters	22,114 liters	0
Solid waste	150 kg	190 kg	0



AND WHAT ABOUT PLASTIC?

The use of 20 percent plastic—made from oil—does not seem to make Stone Paper environmentally sustainable. However, the plastic consumption stands in a different light given the never-ending recycling opportunity for Stone Paper. This is an example of a good—and sustainable—use of a fossil fuel product. Used Stone Paper is shredded and subsequently warmed. The heat decomposes the substance into a paste that is turned into pellets. The pellets are pulverized into new powder for a new batch of paper, with no need for additional new plastic in the mix. Stone Paper is a new, innovative product which keeps being improved. Recent tests show that Stone Paper can also be made with biodegradable plant-based plastic.

STONE PAPER COSTS AND RETURNS

	Pulp paper	Stone Paper
Raw materials	\$750/ton	\$380/ton
Plant construction	\$3,600/ton	\$1,400/ton
Return on investment	<5%	>20%



MAGAZINES, NOTEBOOKS & REPORTS

This magazine is printed on Stone Paper®. The example should speak to the sustainability department of each corporation. What about printing the annual (environmental) report on this innovative material? Is there a better-aligned message with the environmental missions of companies? Notebooks? Of course! Stone Paper notebooks are specifically superior in outdoor situations: restaurants, construction sites, etc. Stone Paper notebooks are also good conversation starters. Unless you use KAMP SOLUTIONS magazine...

FLEXIBLE PACKAGING AND ADHESIVE PRODUCTS

In many situations, plastic packaging can be replaced with food-grade Stone Paper. That replacement immediately saves up to 80 percent plastic! Pouches to pack food items or even drinks. Stone Paper can also be used for printing adhesive labels.

SOON TO COME: BOXES, MANY BOXES!

Boxes present the big future of stone paper! Stone Paper corrugated cardboard is rapidly coming to the market. The white Stone Paper box in the picture is used in Taiwan to ship frozen fish. Soon, you will see Stone Paper boxes everywhere. Which companies will lead this massive environmental revolution? Who do you know who should be told about the opportunities Stone Paper present for packaging?

WELCOME TO THE STONE AGE

Do you want to become part of the stone paper solution as an investor or entrepreneur?

Email us at solutions@kamp.solutions or visit www.stonepapertech.com

Jurriaan Kamp

Represented by Talent Concierge® Artists Agency



Talent CONCIERGE®
ARTISTS AGENCY

ARTISTS AGENCY WITH HEART



Delivering world-class Opportunities, for world-class Talent and world-class Brands.

YOU are the BRAND®

Jurriaan Kamp
The Solutions Guy

Your audience will leave refreshed, relaxed, optimistic, and confident for the road ahead!

Energize your next event, Book Jurriaan Kamp Today!

Talent Concierge® Artists Agency
New York City | Nashville | Los Angeles

Tel: +1 213.340.1422 | +1 570.906.4395
www.talentconcierge.com



EDITORIAL

INEVITABLE? IRREVERSIBLE? SOLUTIONS!

Recently, the *Intergovernmental Panel on Climate Change* (IPCC), the world's leading authority on climate science, published a report with the starkest warnings yet that human activity is changing the Earth's climate in "unprecedented" ways. The language of the climate scientists was somber: "extreme weather", "widespread devastation", "irreversible damage".

In the past months, we have already seen much extreme weather around the planet. There was hardly a need for another report calling for urgent action. In response to the IPCC report, some world leaders—who will meet for United Nations climate talks in November in Glasgow, Scotland—said the findings should force new policy measures. Each nation is asked to come to the climate talks with fresh plans to reduce greenhouse gas emissions to limit global heating to no more than 1.5C above pre-industrial levels.

If previous climate talks offer any guidance, we may not expect too much from the meeting in Glasgow. Politicians are unable to bridge short-term economic interests with the long-term survival needs of humanity. It appears to be a terrible conclusion that politics is unable to deliver what we all need. Does that mean that we are doomed to suffer the dramatic consequences of increasing global warming?

Fortunately, there is another major force in this dynamic: business. Where politicians fail to set universal emission standards and objectives, companies are focused on implementing the most efficient business strategies. That is why—beyond the frustrating political discussions—many, many groundbreaking solutions are rapidly being implemented. Yes, these solutions serve people and planet. But the first reason that they are quickly scaling is because companies can make more money. For example: already today, utilities in almost 40 out of the 50 U.S. states are investing in solar power to increase their electricity production. They are not choosing solar energy above coal-fired power plants because of lofty environmental objectives or because of government subsidies; they are doing so because they can be more profitable.

There are many more examples where economic and environmental objectives go hand in hand. An international coalition of 70 researchers and scientists from 22 countries charted all the solutions that are currently being implemented to reverse global warming. *Project Drawdown* conservatively concluded that based on current facts and technology it is plausible that we can reverse global warming in the next 25 years. See the interview with Drawdown's executive director, Jonathan Foley, on page 16.

New solutions are coming every day. Climate change also offers the biggest business opportunities since the beginning of the Industrial Revolution. In other words, it is reasonable to project that—as time passes—the outcomes of the Drawdown modelling will further improve.

In line with the message of the scientists of Drawdown, 'the world's first energy guru', Amory Lovins, keeps repeating his 50-year-old mantra that "America can find more energy in the attics of its homes—through energy efficiency—than in all the oil buried in Alaska". "Using less energy through smarter technologies is saving twice as much energy each year as we are adding through new renewables", says Lovins. See story on page 8.

I am not trying to sugarcoat the bad news of climate change. There are going to be more terrible droughts and storms. We cannot avoid failed harvests and, in the poor parts of the world, hunger. But it is also important to know that solutions to reverse global warming keep coming and get stronger every day. Beyond the headline news, we can see a brighter future.



BY JURRIAAN KAMP
EDITOR & CURATOR

The solutions are there.

Not enough people know about them.

That is why innovation is not happening fast enough.

That is why problems are not solved fast enough.

That needs to change.

That is the mission and the service of KAMP SOLUTIONS.

EDITORIAL BOARD

JURRIAN KAMP
NANCY REED MCGRATH

ART DIRECTOR
CARL DE VAAL

BUSINESS DEVELOPMENT
ERIK FELDERHOF

SUBSCRIPTIONS
KAMP SOLUTIONS magazine is published quarterly on the first day of each season.
Subscription fees:
Digital: \$40
Print (stone paper): \$80.
A print subscription includes the option for subscribers to send a free sample copy of the stone paper edition to their friends.
Go to: kamp.solutions/stone2friend

KAMP SOLUTIONS IS PRODUCED BY JJK SOLUTIONS LLC, SANTA BARBARA, CALIFORNIA. ALL RIGHTS RESERVED.

Printed on Stone Paper



What's in it for you?

BUSINESS

'INTELLIGENT DESIGN IS THE KEY TO REVERSING GLOBAL WARMING'
Energy expert Amory Lovins explains the power of the energy we do not use. _____ 10

BUSINESS

THINKING ABOUT THE BOX
Digital printing can massively reduce the environmental impact of packaging and provide a better consumer experience. _____ 14

ENVIRONMENT

'CLIMATE CHANGE, GAME OVER? HELL NO, IT'S GAME ON!'
The first comprehensive map of the solutions to reverse global warming shows that humanity is mobilizing to seriously address climate change. _____ 18

GOVERNMENT

OURS
Entrepreneur Peter Barnes proposes to change the rules of capitalism to protect universal property. _____ 24

TECHNOLOGY

COMMUNICATION AT THE SPEED OF LIGHT
LED technology introduces light wave communication—or LiFi—that will revolutionize the Internet, save energy, and support human health. _____ 34

BUSINESS

'LIFI COMES WITH BIG HEALTH BENEFITS'
Frans Otten of LiFi pioneer Ellipz talks about the opportunity to introduce healthy light wave communication in schools. _____ 40



8



12



16



22



32



38

COLUMNS:

JURRIAN KAMP EDITORIAL _____ 7

ASTROLOGY BY PI MILLIONAIRES DO NOT USE ASTROLOGERS, BILLIONAIRES DO _____ 43

'INTELLIGENT DESIGN IS THE KEY TO REVERSING GLOBAL WARMING'

ENERGY EXPERT **AMORY LOVINS** ABOUT THE POWER OF THE ENERGY WE DO NOT USE

THE WINTER MORNING I am arriving at the home of Amory Lovins at 7,200 feet in the Rocky Mountains, the sun is shining brightly upon the snow-capped peaks. It's freezing. The previous night the temperature dropped to minus 22 degrees Fahrenheit. Inside the home of the visionary founder of Rocky Mountain Institute, the influential American energy think tank, it is comfortable. In the sunlit indoor garden in the middle of the living room a bunch of almost ripe bananas hangs on a tree. It is the 72nd crop since Lovins built the home 35 years ago. And the passive solar house near Aspen, Colorado has no furnace...

The bananas symbolize the message that Lovins has spread for 50 years: the world's biggest untapped energy source is efficiency. And that is where the key to reversing global warming lies. There is a place for solar panels and new technology, but the biggest solution for climate change will come from "intelligent design". The "shiny objects" regularly



'SMART DESIGN DEPLETES NOTHING BUT STUPIDITY... BUT THAT IS, OF COURSE, A VERY ABUNDANT RESOURCE'

make the headlines because—as Lovins argues—you can see windmills and solar panels. “You cannot see the energy you do not use. But today that is the world’s biggest energy source—bigger than oil”, he says.

Many years ago, Lovins famously said that America would find more energy in the attics of its homes—through energy efficiency—than in all the oil buried in Alaska. Energy efficiency became his mission after he failed to convince his physics professors at Oxford University in 1971 to let him do a doctorate in ‘energy’. “Energy? What is that? It is not an academic subject, is it?, they said”, Lovins remembers. Two years later when the 1973 oil crisis hit, nobody questioned the importance of energy as an academic topic anymore.

Arguably, Lovins’s main contribution has been a reframing of the energy problem. Until the mid-seventies the energy problem was defined through the question: Where do you get *more* energy—which source at which price? “I thought that was the wrong question”, he says: “it makes more sense to start at the other end of the problem: What do we want energy for?”. In Lovins’s vision we do not want barrels of sticky oil or lumps of coal; we want the services the energy provides, like hot showers, cold beers, comfort, and mobility. “How do we get that end-use at least cost?”, he asks.

With a different question, you get different answers. Instead of searching for more energy, Lovins set up an institute focused on providing the same and better services with less energy. In 1976, he claimed that energy intensity—the cost of converting energy into economic output—in the United States could fall 72 percent in 50 years. At the time, it sounded as a wild and far-fetched prediction with

costly economic consequences. Rocky Mountain Institute recently looked at the numbers again and concluded that energy intensity had already fallen 58 percent in 43 years while the US economy tripled in size.

The message is that the potential of energy efficiency cannot be overstated. In his latest book, *Reinventing Fire* (2011) Lovins and 61 colleagues show how a business-led transition could triple energy efficiency, quintuple renewables, and sustain an American economy 2.6 times larger in 2050 than it was in 2010, yet with no oil, coal or nuclear energy, and one-third less natural gas. The net cost of this transition will be \$5 trillion *less* than business-as-usual. And, even without any carbon pricing—which would dramatically speed up the clean energy transition—emissions will go down 82 to 86 percent.

In other words: reversing global warming becomes a gigantic economic opportunity. Lovins: “The energy revolution is the biggest shift in human affairs since the invention of agriculture and it will lead to a richer, fairer, cleaner, cooler and safer world.” The revolution is unfolding before our eyes. “Today, using less energy through smarter technologies is saving twice as much energy each year as we are adding in the world through extra renewable supply”, says Lovins.

Here is an example. In 2011, Rocky Mountain Institute led the retrofitting on the Empire State Building in New York. Six thousand five hundred fourteen heat-leaking windows were rebuilt into better ones that pass light, block heat, and insulate severalfold better. In addition, the lighting and cooling throughout the skyscraper were improved. The building’s energy use was reduced by 38 percent, repaying the investment in three years. Three years later, Rocky Mountain Institute retrofitted a government office building in Denver, Colorado and cut energy use by 70 percent. That made the half-century-old building more efficient than what was then the best new office in the US. Rocky Mountain Institute’s own recent new headquarters is yet twice as efficient, Lovins explains, “and now there is already a German building using three-fifths less energy than ours”.

Lovins’s optimism is contagious. He is a walking encyclopedia of energy statistics, yet he delivers his facts with a heartwarming sense of humor. There are many geniuses in our world. Few have the capability to inspire presidents and CEOs on an ongo-

ing basis. Jimmy Carter was the first US president Lovins advised. Lovins has traveled the world and his team of scientists has presented breakthrough concepts that major global corporations have been implementing. In 1991, Lovins presented the concept of a Hypercar. Starting in 2013, BMW was able to build the first model, one of which is parked in front of Lovins’s home. “The car has quadruple normal efficiency and it was profitable to make from the first unit because manufacturing it requires a third of the normal capital and water and half the normal energy, space, and time. It is just much simpler,” he says.

Lovins’s positive vision for the cheap clean energy future adds novel insights to the ongoing stream of dire warnings about climate change. The Paris climate agreement aims to restrict global warming to two degrees. Climate scientist James Hansen has called that two-degree warming “a prescription for long-term disaster.” However, according to a study based on current carbon emissions, the odds of succeeding in keeping the rise of global temperatures below two degrees are only one in 20.

Disaster seems almost unavoidable. But Lovins, though he has been deeply concerned about climate change for over a half-century, is not discouraged: he says that calculation assumes emissions will be abated only as fast as they were before 2010. “The models tend to be based on old data, from before 2010. But starting around 2010 there was a rather abrupt uptick in the rate of saving energy and the rate of producing energy without carbon release. When you add up what is happening in those two areas, you find that we are already most of the way to a two-degree abatement, and in some years, like 2016, we are actually there. I am quite encouraged with how quickly efficiency and renewables are catching on, and are reducing carbon and cost.”

Modelling climate change is a huge effort. It is very hard to forecast the introduction and acceptance of new technologies. Nobody foresaw the exponential growth curve of the iPhone—and other smartphones—after their introduction in 2007. Driverless electric cars, for instance, could change society in a similar way and that would dramatically affect the current climate models. To illustrate the modelling challenge, Lovins points to an unexpected consequence of the smartphone revolution: “The phone makers paid enormous sums to get a little more life out of the cellphone batteries.

'USING LESS ENERGY THROUGH SMARTER TECHNOLOGIES IS SAVING TWICE AS MUCH ENERGY EACH YEAR AS WE ARE ADDING THROUGH NEW RENEWABLES'

That has driven the innovation of the lithium battery technology. And that has made electric cars like Tesla today much more competitive. Nobody foresaw that rapid improvement in battery technology.”

Lovins describes the energy revolution as the phenomenon of “ripples in a pond” where causality is spread across complex webs, and between many different industries. “We are now only starting to map those relationships to figure out where are the unexpected links that have not quite happened yet. Then we could help bring them into being.”

The future will be determined by smart design of energy systems. Lovins: “If you design a building, a vehicle, or a factory as a whole system for multiple benefits, you will get several-fold bigger energy savings—and lower costs—than traditional design that is only focused on optimizing each part. Often, the parts end up working against each other because they are not designed to work with each other. It is a very simple idea, but most things that use energy are not designed in that holistic way.”

“The biggest barriers are not technical. They are not economic. They are between our ears. Energy efficiency is not the only thing we need to be doing, but it is the most powerful, under-scooped, under-invested, under-perceived part of the comprehensive energy solution.” After pioneering energy research for half a century, Amory Lovins shows no signs of retirement. “I am 71”, he says, “my parents lived to 97. We will see how close I get.” His best idea may be yet to come. He looks at his banana tree and then notes: “Smart design depletes nothing but stupidity... but that is, of course, a very abundant resource.” With a twinkle in his eyes, he adds: “The search for intelligent life on Earth continues.” **[JK]**

THINKING ABOUT THE BOX

DIGITAL PRINTING CAN MASSIVELY REDUCE THE ENVIRONMENTAL IMPACT OF PACKAGING AND PROVIDE A BETTER CONSUMER EXPERIENCE



SOME 200 YEARS AGO, the French government offered a money prize to the inventor who could create the best container for preserving food for Napoleon's army. The contest presented the tin can, and arguably introduced the concept of 'packaging' to the world. From Napoleon's tin cans to today's milk cartons and bubble wrap, packaging has evolved into a gigantic \$900 billion industry (McKinsey, 2019) that uses enormous amounts of resources—energy and raw materials.

"Packaging is necessary. It is an important part of how we safely and hygienically transport products around the globe. But we can—and must—do more to reduce the impact that it has on the planet", says Jose Gorbea, global head of brands, agencies and sustainability innovation at HP Graphic Arts.

According to a report by the Center of International Environment Law packaging accounts for 40 percent of the global demand for plastics. And that plastic ends up everywhere. Packaging waste is polluting coastlines, clogging waterways and, according to the World Economic Forum, is costing the global economy a staggering \$120bn every year.

Where there is waste, there is opportunity. New technology is revolutionizing the packaging industry and allowing for major environmental savings. "The secret to cutting packaging waste is to only produce what you need, without creating unnecessary excess", says Gorbea. Digital printing uses technology to transform the outdated and clunky process of analogue printed packaging. By digitizing the print process, it removes cumbersome stages, dramatically improving speed to market and removing the need for minimum order quantities.

Gorbea refers to a 2016 life cycle assessment by Earthshift Global that shows that digital printing can reduce supply chain waste by up to 26 percent and cut the carbon footprint of printing by 65 to 80 percent.

There is an impressive list of benefits of digital printing. The process requires less ink and paper than conventional offset printing. Offset printing needs plates made from rubber or polyester. Each change in copy or design requires a new plate. Each time a new plate is mounted, the press needs to get realigned. In a traditional printing job, at least 15 percent of paper is wasted during test runs. Digital

printing reduces that waste to 5 percent, and design changes have very limited material impact.

Conventional printing uses oil-based inks. That means that chemical solvents are necessary to clean the printing presses. These chemicals and inks also release gases ('volatile organic compounds', or VOC's) that can cause damage to human health. Digital printing, on the other hand uses solid toner that is water- or mineral-based and soluble, eliminating the need for cleaning chemicals

Digital printing improves the color quality of the print. Offset printing uses combinations of four base colors (cyan, magenta, yellow and black, or CMYK) to match any color in the spectrum. Digital printing uses five to seven different toners and provides much better color coverage. The top of the line HP Indigo digital printers can reach 97 percent of a Pantone—the industry standard for color identification—color.

However, perhaps the biggest contribution of digital printing is that it fits the 'just in time' concept that is driving today's manufacturing and distribution processes. Traditionally, packaging is

'PACKAGING INNOVATION IS GOOD FOR PLANET, PEOPLE AND PROFIT'

produced in volume to benefit from economies of scale. Boxes are stored in warehouses waiting for products to be manufactured and shipped. Often, substantial parts of that inventory are ultimately destroyed or recycled because products, regulation or marketing campaigns change. Just imagine the impact of authorities requiring any additional information on a food label...

Digital printing is fast and flexible. There is no need to pre-print excess inventory. The per item price may still be a bit higher compared to the cost of high-volume offset printing, but that expense is amply compensated by the reduction in the use of materials and energy. Studies show that companies in the long run can reduce their packaging manufacturing costs with up to 50 percent.

'WE CAN—AND MUST—DO MORE TO REDUCE THE IMPACT THAT PACKAGING HAS ON THE PLANET'



HP's Jose Gorbea: "Packaging is where brands and critical sustainability objectives can meet to drive real change and impact."

HP's Gorbea observes that digital printing can also bring together marketing and sustainability priorities within companies. "Brand marketers sometimes feel disconnected from the sustainability dialogue. But packaging innovation is good for planet, people and profit."

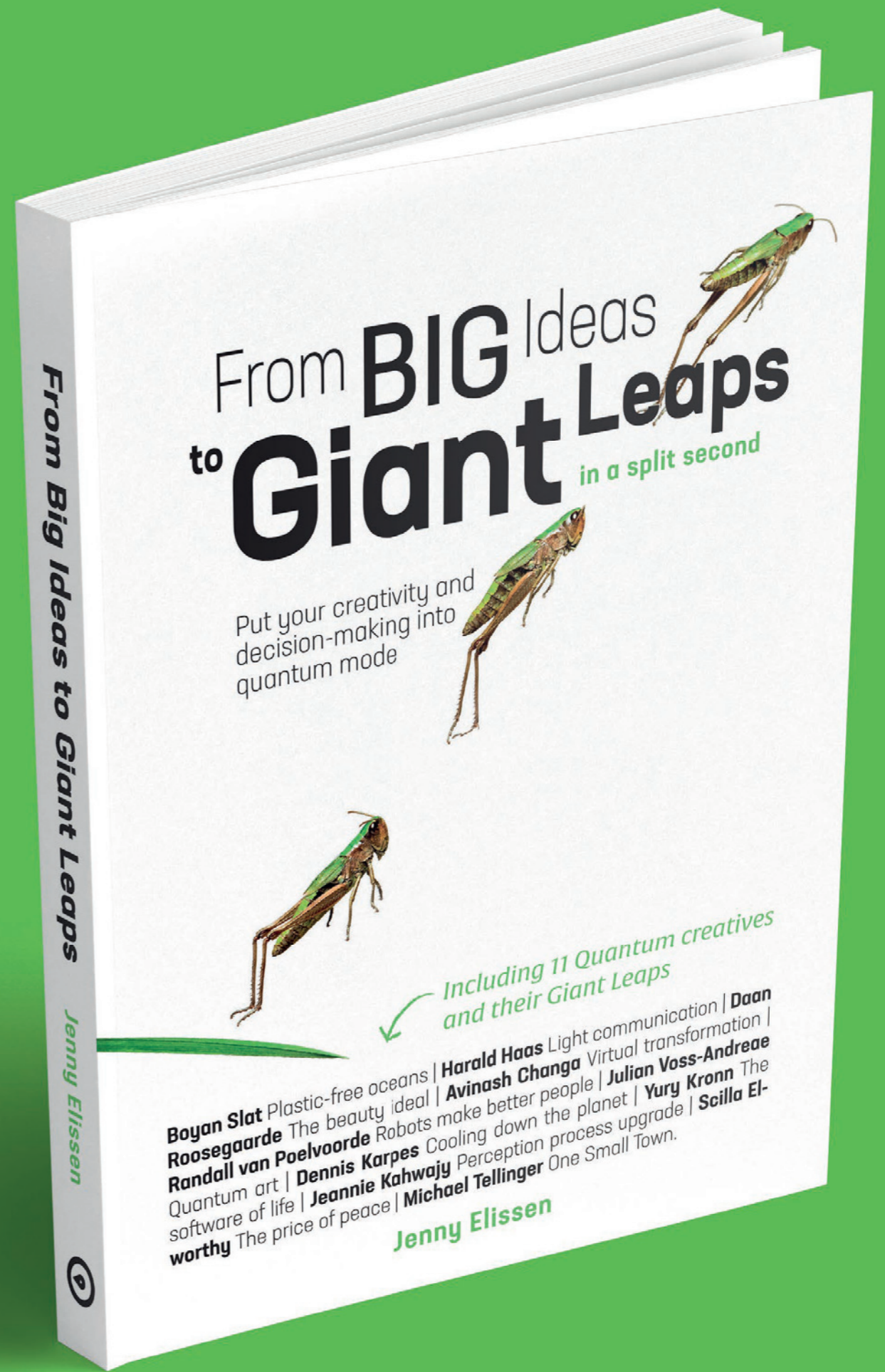
Packaging no longer serves as just a container. It allows for content marketing, storytelling. Chocolate manufacturer Hershey started an interactive '#HerShe' campaign to celebrate women and encourage an important gender conversation with bespoke and limited-edition HP digitally printed packaging. The campaign increased consumer engagement while reducing the business' impact on the environment.

In South Africa, liqueur manufacturer Amarula—known for the elephant on their labels—used digital printing for a special campaign to raise awareness about the dangers elephants face from ivory poachers. Consumers could design individual labels to show their support.

Digital printing allows for personification. Coca-Cola is running a special 'share a Coke with a friend' campaign using the 150 most popular names in different states in the U.S. The flexible process also makes it possible to adjust packaging to seasons. The same candles can be packaged differently for Valentine's Day or for Christmas.

At HP, the ultimate objective is to make packaging a completely personal experience. Today, packages arrive at our doorsteps like Russian dolls—a box in a box in a box... The shipment and the product boxes could become one and contain a message that is specific and relevant to the recipient. Imagine your new hiking shoes arriving in one box that has a recommendation for popular hikes close to where you live including trail descriptions and maps.

Technology is rapidly transforming the packaging industry. Gorbea: "Packaging is where brands and critical sustainability objectives can meet to drive real change and impact." [JK]



'CLIMATE CHANGE, GAME OVER? HELL NO, IT'S GAME ON!'

THE FIRST COMPREHENSIVE MAP OF THE SOLUTIONS TO REVERSE GLOBAL WARMING SHOWS THAT HUMANITY IS MOBILIZING TO SERIOUSLY AND SUCCESSFULLY ADDRESS CLIMATE CHANGE.

THE NEWS ABOUT GLOBAL warming is dark and negative. Human activity is changing the climate in unprecedented and sometimes irreversible ways, says the latest United Nations scientific report. *The study by the Intergovernmental Panel on Climate Change (IPCC)* warns of increasingly extreme heatwaves, droughts and flooding. Daily news about weather catastrophes from around the world confirms the dire warnings of the scientists.

As a result, most people feel desperate and disempowered about global warming while some politicians choose to ignore the problem altogether.

If you search the web for top climate change solutions you get obvious answers, like move closer to work, consume less, become vegetarian... and, of course, replace fossil fuels with renewable energy. All good things but somehow you do not get convinced that these lifestyle adjustments will bring global temperatures down again. The interest-



JONATHAN FOLEY
EXECUTIVE DIRECTOR
PROJECT DRAWDOWN



ENERGY MEDICINE TRAINING

TRANSFORM YOUR BODY, HEAL YOUR SOUL, CHANGE THE WAY YOU LIVE.

AT THE FOUR WINDS SOCIETY'S LIGHT AND BODY SCHOOL,
WE HAVE TRAINED THOUSANDS OF STUDENTS WHO ARE ENJOYING JOYFUL,
HEALTHY LIVES AND REWARDING CAREERS.

FIND OUT ABOUT
**OUR COURSES &
FREE ONLINE TRAINING**

thefourwinds.com

'REVERSING GLOBAL WARMING IS NOT ONLY POSSIBLE. IT IS POSSIBLE TODAY WITH TECHNOLOGIES WE HAVE RIGHT NOW'



ing conclusion is that there is no big plan to reverse global warming, despite the fact that climate change has been dominating international politics for two decades.

Scientists study the impact of carbon emissions and they keep making their projections for global warming. But, until recently, nobody did a proper integrated analysis of the available solutions. Since 2013, an international coalition of 70 researchers and scientists from 22 countries has analyzed the data and projections of the world's leading research institutions in fields from energy to food and from family planning to reforestation. In 2017, they published their initial findings in a book that outlines how to 'drawdown' the amount of carbon in the atmosphere: *Drawdown: The most comprehensive plan ever proposed to reverse global warming*.

The book presents 100 solutions (the authors are working on a second book with 60 more) with detailed analysis of costs and carbon savings. Wind energy is the only renewable energy source in the top 7 solutions. The list starts with 'refrigeration management'. That is getting rid of harmful cooling gases—unexpectedly, the impact exceeds everything else we can do to reverse global warming. Then: reduce food waste, plant based-di-

ets, girls' education, family planning and forest regeneration. It is not the list you would expect but Drawdown meticulously shows why these solutions will take care of about half the necessary goal to reverse global warming. Then there are 93 more solutions to realize the other half.

The message of *Drawdown* is clear: Beyond the doom and gloom talk of climate change and global warming, humanity is already successfully working on solving the problem. Drawdown's conclusion is remarkably optimistic: Using a conservative approach based on current facts and technology it is plausible that we can reverse global warming in the next 30 years. "We can actually stop global warming, drawdown pollution and reverse climate change", says Dr. Jonathan Foley, environmental scientist and Drawdown's executive director. "It is not only possible. It is possible today with technologies we have right now."

The Drawdown team modeled each existing solution to global warming using the growth statistics and curves of the leading energy institutions in the world, the International Energy Agency (IEA), The International Renewable Energy (Irena), the Intergovernmental Panel on Climate Change (IPCC) and

others. The focus of the research was not to achieve drawdown. The scientists looked at each solution and then 'hit the total button'.

The 'Plausible Scenario' does not achieve drawdown. However, with a few minor optimizations the team concluded that drawdown could realistically be achieved in 2045. Foley: "We did not make this plan. It is a map of what is happening. It is here and it is scaling."

Drawdown's optimism is grounded in the fact that whatever humanity will be able to achieve in the next 25 years is not yet part of the plan. The book includes 20 'coming attractions'—from driverless cars to ocean farming—which are scientifically validated, potential game-changing solutions that show the potential of human ingenuity and imagination. But they are not part of the model because they are still too new. Another example: Readers of this magazine will also miss stone paper in the list, and we know that this revolutionary innovation is ready to transform the packaging industry while massively saving energy and carbon emissions.

In the battle against global warming the focus is almost entirely on the use of energy, on carbon emissions. "That is only 60 percent of the problem.

'IT IS NOT A [SOLAR] PANEL; IT IS A WOMAN'

PAUL HAWKEN
FOUNDER
PROJECT DRAWDOWN

out that women have a much bigger role to play than men in most of the world's climate solutions. That is fantastic," says Foley.

Glancing through the 100 solutions of Drawdown is an inspiring and empowering experience. Many solutions are anticipated—smart thermostats, insulating glass and LED lights; other solutions have a much bigger impact that you would expect—reducing food waste and more plant-based diets are the third and fourth biggest solutions. The pandemic has underlined the vast opportunity for teleconferencing.

The message of the book is at odds with the dominant environmental news. "Most of the environmental messages today are invoking fear," says Foley. "Of course, we are experiencing some pretty scary events. But with a fear mindset it is very hard to solve problems. There is no creativity or constructive thinking."

"We have the technologies and economic tools to solve the problem. We have to be hopeful and courageous. We cannot say: 'Do not worry. The invisible hand of the market will take care of the solutions.' We need everybody's hands right now."

Foley is clear that reversing global warming begins with changing mindsets. Drawdown aims to change the narrative and deploy the tools. "If we do not believe we can solve climate change, how will we? We have to get up and get to work."

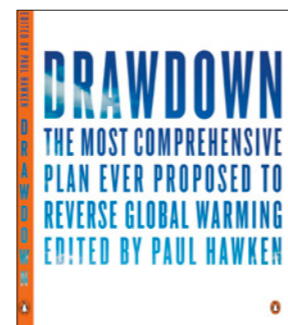
"Let us be clear. This is not the first global crisis humanity has ever faced. And it will not be the last. As a child I was taught that many things were impossible—gay marriage, an African American president, the end of Apartheid, the end of the Cold war... All these things not only turned out to be possible; they became inevitable. So, when people tell me that we cannot solve the problem of climate change, I say: 'O, yeah, really?'"

"Generations before us have tackled incredible challenges from the Great

Depression to defeating fascism and World War II. We can do great things when we put our minds to it. We need to do that again. Climate change is game over? Hell, no, it is game on!"

Foley grew up wanting to be an astronomer. He studied physics and astronomy in college. One day in his junior year, he had a "bad dream." "I realized that those planets out there could wait. This one cannot." He switched his academic focus and did a PhD in atmospheric science and oceanography. He has been working on climate change and ecosystems ever since. Foley has published over 130 articles in scientific journals like Science, Nature, and the Proceedings of the National Academy of Sciences. Before joining Project Drawdown, he was a professor at the University of Wisconsin, and he served as the Executive Director of the California Academy of Sciences.

As mindsets change and more and more people rise to the challenge of global warming, Foley sees opportunities to contribute for everyone. "I hope that the next big solutions to climate change are not coming out of some university or from the lab of a famous entrepreneur. It might be a guy in a garage finding a breakthrough new technology. Or a farmer in the tropics figuring out a better way to grow food. Or a girl in Tanzania who will lead another social justice movement. Unlikely heroes and heroines will be the ones to help buoy all of us into a better future." [JK]



More information: drawdown.org and Paul Hawken (editor) Drawdown: **The most comprehensive plan ever proposed to reverse global warming.**

The other 40 percent have to do with social, behavioral and economic changes", says Foley. Remarkably, the Drawdown research shows that family planning and the education of girls in developing countries taken together offer the biggest solution to global warming. Drawdown's founder, environmentalist and entrepreneur Paul Hawken summarized the finding: "It is not a [solar] panel; it is a woman".

Foley: "We are not calling for population control or anything coercive. Nobody wants that. However, if you offer opportunities—education, access to doctors—to lift up the lives of girls and young women, you see that they get children a little bit later and over their lifetime a little bit fewer. It happens because they want to, not because anyone is forcing them."

Social policies determine the future course of population growth. The more educated women are, the fewer children they will have. In terms of carbon emissions, it makes a big difference whether the world ends up with eight, nine or ten billion people.

The historic trend is encouraging. In 1950, the average woman on the planet had almost five children. Today, the global average is around 2.4 children per woman—just above the so-called "replacement-level fertility" of about 2.1. It is not just demographics. "It turns

INTRODUCE THE STONE PAPER EDITION OF KAMP SOLUTIONS TO YOUR FRIEND!

EACH SUBSCRIBER CAN SEND A **FREE COPY** OF THE STONE PAPER EDITION OF **KAMP SOLUTIONS** TO FRIENDS.

GO TO KAMP.SOLUTIONS/STONE2FRIEND



SHARE THE SOLUTIONS

OURS

THE CASE FOR UNIVERSAL PROPERTY

[by PETER BARNES]

CAPITALISM AS WE KNOW it has two egregious flaws: it relentlessly widens inequality and destroys nature. Its 'invisible hand,' which is supposed to transform individual self-seeking into widely shared well-being, too often does not, and governments cannot keep up with the consequences. For billions of people around the world, the challenge of our era is to repair or replace capitalism before its cumulative harms become irreparable.

Among those who would repair capitalism, policy ideas abound. Typically, they involve more government regulations, taxes, and spending. Few, if any, would fundamentally alter the dynamics of markets themselves. Among those who would replace capitalism, many would nationalize a good deal of private property and expand government's role in regulating the rest.

I suggest exploring the terrain midway between repairing and replacing capitalism. It envisions a transformed market economy in which private property and businesses are complemented by universal property and fiduciary trusts, whose beneficiaries are future generations and all living persons equally.

Economists wrangle over monetary, fiscal, and regulatory policies but pay little attention to property rights. Their models all assume that property rights remain just as they are forever. But this need

not and should not be the case. My premise is that capitalism's most grievous flaws are, at root, problems of property rights and must be addressed at that level.

Property rights in modern economies are grants by governments of permission to use, lease, sell, or bequeath specific assets—and just as importantly, to exclude others from doing those things. The assets involved can be tangible, like land and machinery, or intangible, like shares of stock or songs.

Taken as a whole, property rights are akin to gravity: they curve economic space-time. Their tugs and repulsions are everywhere, and nothing can avoid them. And, just as water flows inexorably toward the ocean, so money, goods and power flow inexorably toward property rights. Governments can no more staunch these flows than King Canute could halt the tides.

That said, the most oft-forgotten fact about property rights is that they do not exist in nature; *they are constructs of human minds and societies*. The assets to which they apply may exist in nature, but the rights of humans to do things with them, or prevent others from doing them, do not. Their design and allocation are entirely up to us.

I take our existing fabric of property rights as both a given *and* merely the latest iteration in an evolutionary process that has been and will contin-



PETER BARNES

AUTHOR, **OURS**

THE CASE FOR UNIVERSAL PROPERTY

THE MOST OFT-FORGOTTEN FACT ABOUT PROPERTY RIGHTS IS THAT THEY DO NOT EXIST IN NATURE; THEY ARE CONSTRUCTS OF HUMAN MINDS

ue to be altered by living humans. Future iterations of the fabric will therefore be a product not only of the past, but also of our imagination and political will in the future. And, while eliminating existing property rights is difficult, adding new ones is less so.

We need to look at co-inherited wealth, for that is what universal property is based on. A full inventory of co-inherited wealth would fill pages. Consider, for starters, air, water, topsoil, sunlight, fire, photosynthesis, seeds, electricity, minerals, fuels, cultivable plants, domesticable animals, law, sports, religion, calendars, recipes, mathematics, jazz, libraries, and the internet. Without these gifts and many more, our lives would be incalculably poorer.

Universal property, however, does not involve all of those wonderful things. Rather, it focuses on a subset: the large, complex natural and social systems that support market economies, yet are excluded from representation in them. This subset includes natural ecosystems like the Earth's atmosphere and watersheds, and collective human constructs such as our legal, monetary and communications systems.

All these systems are enormously valuable in some cases priceless. Not only do our daily lives depend on them; they add prodigious value to markets, enabling corporations and private fortunes to grow to gargantuan sizes. Yet the systems were not built by anyone living today; they are all gifts we inherit together. So it is fair to ask, *who are their beneficial owners?*

There are, essentially, three possibilities: no one, government, or all of us together equally. I propose we choose the third option and create property rights to make it real.

Let's start with an obvious question: how much is this subset of co-inherited wealth worth? While it is impossible to put a precise number on this, estimates have been made. In 2000, the late Nobel economist Herbert Simon stated, "If we are very generous with ourselves, we might claim that we 'earned' as much as one fifth of [our present wealth]. The rest [eighty percent] is patrimony associated with being a



member of an enormously productive social system, which has accumulated a vast store of physical capital and an even larger store of intellectual capital."

Simon arrived at his estimate by comparing incomes in highly developed economies with those in earlier stages of development. The huge differences are due not to the rates of economic activity today—indeed, young economies often grow faster than mature ones—but to the much larger differences in institutions and know-how accumulated over decades.

A few years later, World Bank economists William Easterly and Ross Levine confirmed Simon's math. They conducted a detailed study of rich and poor countries and asked what made them different. They found that it was not natural resources or the latest technologies. Rather, it was their social assets: the rule of law, property rights, a well-organized banking system, economic transparency, and a lack of corruption. All these collective assets played a far greater role than anything else.

Consider, for example, Mark Zuckerberg, the founder and largest shareholder of Facebook. According to *Forbes* magazine, Zuckerberg is the fourth richest person in the world, with a net worth exceeding \$90 billion. No one doubts that he is brilliant and hardworking, but there is no conceivable way any mortal can earn \$90 billion in ten years. The reason Zuckerberg is so wealthy is that the value of Facebook's stock comes overwhelmingly from co-inherited wealth: the internet, computers, silicon chips, and all the science and research that preceded them, not to mention the millions of people whose eyeballs supply its revenue base. Though Zuckerberg himself might not acknowledge this, his fellow billionaire Warren Buffett has been frank: "I personally think that society is responsible for a very significant portion of what I've earned."

The preceding analysis does not include ecosystems gifted to us by nature, but Robert Costanza and a worldwide team of scientists and economists took a crack at that in 1997. They found that natural ecosystems generate a global flow of bene-

fits – including fresh water supply, soil formation, nutrient cycling, waste treatment, pollination, raw materials and climate regulation—worth between \$25 trillion and \$87 trillion a year. That compares with a gross world product of about \$80 trillion.

These calculations are precise enough to suggest that we are greatly confused about where our wealth today comes from. We think it comes from the fevered efforts of today's businesses and workers, but in fact they merely add icing to a cake that was baked long ago.

The calculations also suggest that we should devote far more attention to co-inherited wealth than we currently do. Nowadays, economics textbooks do not even mention such wealth, much less its magnitude. Nor do Wall Street analysts or financial reporters. This is a grievous oversight that greatly impedes our understanding of our economy. It is like trying to comprehend the universe without taking dark matter into account, or analyzing a business while ignoring over eighty percent of its assets.

WE THINK OUR WEALTH COMES FROM THE FEVERED EFFORTS OF TODAY'S BUSINESSES, BUT IN FACT THEY MERELY ADD ICING TO A CAKE THAT WAS BAKED LONG AGO

in a democracy are open to influence from all quarters—and so they should be. Fiduciaries, by contrast, may listen to many points of view but must always act out of undivided loyalty to their beneficiaries.

What universal property does is to subject some of our co-inherited wealth to fiduciary rules, rather than profit-maximizing or political ones. This may at first seem undemocratic, but neither markets nor representative democracies have been ideal guardians for those who cannot vote, speak, or spend money. Indeed, a good case can be made that universal property *expands* democracy—at least when it comes to management of co-inherited wealth—by including proxies for future generations and nature. There may be irony in the thought that fictitious entities developed to protect English barons can also protect ecosystems and democratic societies, but if the entities work, why not use them?

Beneficiaries of trusts are passive rather than active owners; they receive the benefits of their property without having to manage it. Thus, private trusts are often established to benefit children and grandchildren, while charitable trusts are established to benefit hospitals, universities, and the like. Often, the trusts function as endowments that enable institutions to receive income in perpetuity.

A distinguishing feature of universal property trusts is that they have *universal* beneficiaries—i.e. all living and future persons within a specified jurisdiction. No legal resident is excluded, and all are treated equally. Becoming a beneficiary is a non-transferable birthright that expires at death.

Right now, no child has a legally established right to begin life with an inheritance. About one in four Americans receives *some* money from a parent or grandparent, though often not until late in life. And not surprisingly, these private inheritances are grossly unequal: the wealthiest one percent gets more than everyone else combined.

One of the most important benefits of universal property is that it makes *every* baby a trust-fund baby. It does this by conveying two sorts of inheri-



Paying more attention to co-inherited wealth, however, is just a first step. If we want to change market outcomes, we need to *functionally connect* this wealth to real-time economic activity. And to do that, we need property rights, managers and beneficial owners.

Universal property, as I use the term, is a set of non-transferable rights backed by a subset of wealth we inherit together. Such property is not mine, yours or the state's, but ours—literally held in trust for all of us, living and yet-to-be born. It belongs to us not because we earned it but because we co-inherited it, as if from common ancestors. This co-inheritance is, or should be, a universal economic right, just as voting is a universal political right.

To say that all of us are co-inheritors of universal property does not, however, mean that we should manage it ourselves, or that governments should manage it, ostensibly on our behalf. That job is best assigned to two types of institutions: trusts with a fiduciary responsibility to future generations, and social wealth funds that pay equal dividends to all

living persons within their jurisdictions. An interesting example comes from Alaska.

The Alaska Permanent Fund, created in 1976, is like a mutual fund or unit trust designed to benefit all Alaskans today and tomorrow. Revenue from state oil leases is invested in stocks, bonds, and other assets that generate income and (mostly) grow in value over time. Since 1980, the Fund has paid equal dividends to every Alaskan (including children) ranging from about \$1,000 to \$3,200 a year. As its creator, former Republican governor Jay Hammond, explained, "I wanted to transform oil wells pumping oil for a finite period into money wells pumping money for infinity." At the end of 2020, the Fund had assets of \$65 billion and was pumping money as furiously as ever.

If corporations are the ideal agents for maximizing short-term profit, trusts are the optimal agents for preserving assets in perpetuity. Like corporations, they are self-governing, potentially immortal fictitious entities that can own and manage property for as long as they pay their bills and taxes. Also

like corporations, they have governing boards that are accountable to their beneficial owners. Where trusts and corporations differ is in who their beneficial owners are and what their governing boards are obliged to do.

Trusts were invented in twelfth-century England to protect owners of estates who went off to the Crusades and wanted to get their lands and manors back when they returned. The trust arrangement created a useful distinction between a beneficial owner of property and a trustee, who must always serve the beneficial owner. That was and remains the best solution humans have yet devised to assure that managers of other people's property stay loyal to those they serve.

At the heart of trusts is the concept of *fiduciary duty*: a person who manages assets for other people owes one hundred percent loyalty to those people. It is similar to the duty lawyers owe to their clients.

It is important to note that a trustee's duties are different from those of an elected official. Politicians



radic, slow, and insufficient. We need more arrows in the anti-monopoly quiver.

One way to think about market concentration is as a negative externality similar to pollution. Companies do their utmost to maximize profit and in the process shift costs and harms to others. The shifted harms of market concentration include higher prices paid by consumers, lower wages paid to workers, and often a loss of innovation. From this perspective, a market concentration fee is analogous to an atmospheric pollution fee.

Another way to think about market concentration is as a diminishment of a valuable co-inheritance—competitive markets—for which compensation is due. Whichever point of view you prefer, the case can be made that market concentrators—monopolies and oligopolies—should contribute to a social wealth fund. A market concentration fee proportional to market share—starting, say, when a company captures twenty percent of a market—is one way to do that. And companies could pay in cash or stock.

Such fees would add to the cost of market concentration, thereby discouraging it, and, if equally shared, would enlarge the dividends that flow to everyone. As with pollution fees linked to dividends, there would be double benefits. We would get a mix of less market concentration and higher household incomes.

The principle of ‘making speculators pay’ could offer a third source of income for a social wealth fund. There is far more money swirling around the ‘casino economy’ than the real one, yet players in the casino get a much freer ride. In the economy of goods and services, taxes are levied not only on income but on sales. In the casino, by contrast, income is taxed at lower rates and sales are not taxed at all. This makes little sense.

There are several ways this imbalance could be righted. The simplest and most lucrative would be to insert a tiny fee at the most trafficked points in the monetary circulation system, the clearing houses through which all interbank transfers flow. Right now, the Fed charges less than a dollar to process multi-million dollar transactions between banks—just enough to cover its operating costs. It is a flat fee, not a percentage of the transactions.

Imagine, instead, a microscopic fee of one tenth of one percent on each interbank transfer. Applied to a quadrillion dollars, that yields a trillion dollars a year, or about \$3,000 per person. The actual revenue would be smaller because the fee will discourage some transactions, but it would still be enormous.

tances equally to everyone: natural and social assets held in permanent trust, and a monetized endowment that can provide lifelong income to everyone. Along with the inheritances, however, comes a duty of care. It is a fair deal: we, the living, get income now, and in return must assure that future generations do not lose *their* birthrights.

There are several ways to realize the value of universal property. A social wealth fund based on co-inherited wealth is a first ‘potential money pump’. The principle to make polluters pay for the use of universal property provides the low-hanging fruit for such a social wealth fund. It has the added virtue of protecting nature. The ideal place to start is with the atmosphere.

The best mechanism for charging polluters is to cap the influx of polluting chemicals as far upstream as possible, then sell a declining number of permits. The revenue that could be raised depends on the prices charged, the elasticity of demand and other unknowns. In the case of carbon, revenue estimates range from \$700 to \$2,400 a year per American. This could be supplemented by revenue from other major air and water pollutants, such as nitrogen, methane, phosphates and non-degradable plastics.

A second source of income for a social wealth fund could come from oligopolies, corporations with a dominant market position. Until now, anti-monopoly policy in the US and Europe has focused on stopping mergers, prosecuting anti-competitive practices and occasionally breaking up large companies. These are not bad policies, but they are spo-



FLYING EMBERS

HARD KOMBUCHA

0 SUGAR	LIGHT AND LIVE 85 CALORIES	0 CARBS
ALC 4.5% VOL		

CRAFTED WITH REAL BOTANICALS & FRUIT FLAVORS.
PROBIOTICS + ANTIOXIDANTS



21+ Please Drink responsibly

When you consider that private banks take between one and three percent of every credit card transaction in the real economy, a minuscule transaction fee in the casino seems entirely reasonable.

A second universal money pump, smaller than the first, would be a universal inheritance fund aimed at reducing starting-gate inequality, a primary driver of inequality.

America was once, at least rhetorically, opposed to hereditary aristocracy, but we only abolished hereditary titles, leaving hereditary wealth virtually untouched. It was not until the Civil War that we taxed inheritances at all, yet even now the effective tax rate on them is less than one-seventh the average tax rate on labor income. In 2020 Americans are projected to inherit about \$765 billion; the expected tax revenue is about \$16 billion. That leaves a huge pile of money on the table.

That said, our goal is not simply to tax intergenerational wealth transfers more heavily but to give every child an inheritance. That requires a distribution on the other side. In 1999, Yale law professors Bruce Ackerman and Anne Allstott proposed a “stakeholder grant” of \$80,000 to all high-school graduates, funded by a two percent annual wealth tax.

I can imagine a leak-proof inheritance tax of around fifty percent, with all revenue placed in a universal inheritance fund, the ultimate step in a centuries-long transition from primogeniture to polygeniture. When billionaires and multi-millionaires depart, up to half their estates could pass to their own heirs, with the rest divided among all babies born that year. If the fund captured \$300 billion a year and shared it among four million newborns (the recent US average), each would begin life with a \$75,000 trust fund, to which rules of prudent management would apply. Millionaires’ children would still start on third base, but everyone else’s would at least be at the plate. That seems a reasonable way to give all children a fair, if not equal, start as players in a market economy.



Excerpted and reprinted with permission from Peter Barnes: *Ours: The Case for Universal Property*, Polity Press, 2021

WHAT ABOUT GOVERNMENT?

The case for transforming markets with universal property must confront an obvious question: why not just use government to regulate and tax? My answer has two parts. One has to do with the limits of government, the other with the advantages of universal property.

First, as the unremitting crises of climate change and inequality remind us daily, government has more than met its match in share-holder-owned profit-maximizing corporations. Yes, it has the authority to regulate and tax those corporations, but its will to do so is severely circumscribed by the corporations’ unlimited use of money, media, and lobbying.

Time after time, legislatures and agencies have been captured by industries they are supposed to regulate. If occasionally an effective regulation slips through, it is often whittled down later when political winds shift. And this problem is not easily fixed; it is what happens when winner-take-all capitalism inhabits a pliable democracy.

On the other side of the coin, universally owned property rights have several advantages over government when it comes to altering market outcomes. One is durability. Politicians and policies come and go, but property rights endure. Once created, they cannot easily be taken away. Universal property is thus more likely than regulations or taxes to withstand the slings and arrows of well-funded opponents.

Another advantage of universal property is fiduciary duty. Politicians are legally bound only to support the Constitution; after that they can favor any interest groups they want. By contrast, trustees of universal property are bound by law to serve only future generations and all living persons equally. If trustees deviate from their fiduciary duty, they can be sued, fined, or removed.

A final advantage of universal property is its direct link to everyone’s bank accounts and hence daily lives. That is not the case with most government policies. Because of this cash nexus, people will pay attention to their universal property and defend it politically. Just ask any Alaska politician.

More universal property would make government’s work a lot easier. If markets protected nature better, government would have fewer harms to clean up; if they distributed income more equitably, government would have less stress and misery to remediate. From this perspective, universal property isn’t a substitute for government, but a very useful ally.

The SILVER LINING to GOING SOCIAL



TRU47® boasts an array of unique Masks & Face Coverings for safe and stylish social distancing. All are made with 99.99% pure ionically plated silver – an amazing natural element that is reported to inhibit harmful irritants and protect against germs. Some masks are additionally framed with pure copper, known to be an effective antiviral.

In addition TRU47® features a line of Nasal Inhalers, Spritzes and Mists made with pure essential oils, all custom formulated, with germ fighting Colloidal Silver.

We’d love to share more. Reach out to us at customer@TRU47.com or call us TOLL FREE at 1.800.915.1647



COMMUNICATION AT THE SPEED OF LIGHT

[by GUNTER PAULI and JURRIAN KAMP]

LED TECHNOLOGY IS RAPIDLY TRANSFORMING THE LIGHT INDUSTRY.

LEDS SAVE A LOT OF ENERGY. THEY

ALSO INTRODUCE LIGHT WAVE COMMUNICATION—OR LIFI—THAT WILL REVOLUTIONIZE THE INTERNET.

LIFI SAVES ENERGY, SUPPORTS HUMAN HEALTH, AND ALLOWS FOR MORE AND MUCH FASTER COMMUNICATION.

LIGHT IS THE BEGINNING of our existence. Without light, there is no life. Genesis is clear: “And God said: ‘Let there be light.’” More than a century ago, the invention of the incandescent light bulb started a radical transformation of the way people lived and worked. Today, the world is about to experience a light innovation that ultimately will have as big an impact as the invention of artificial light.

It is an innovation that puts light at the core of communication technology. We know we can communicate through *sound*. However, we can also communicate through *light*. And the word you will remember is: LiFi.

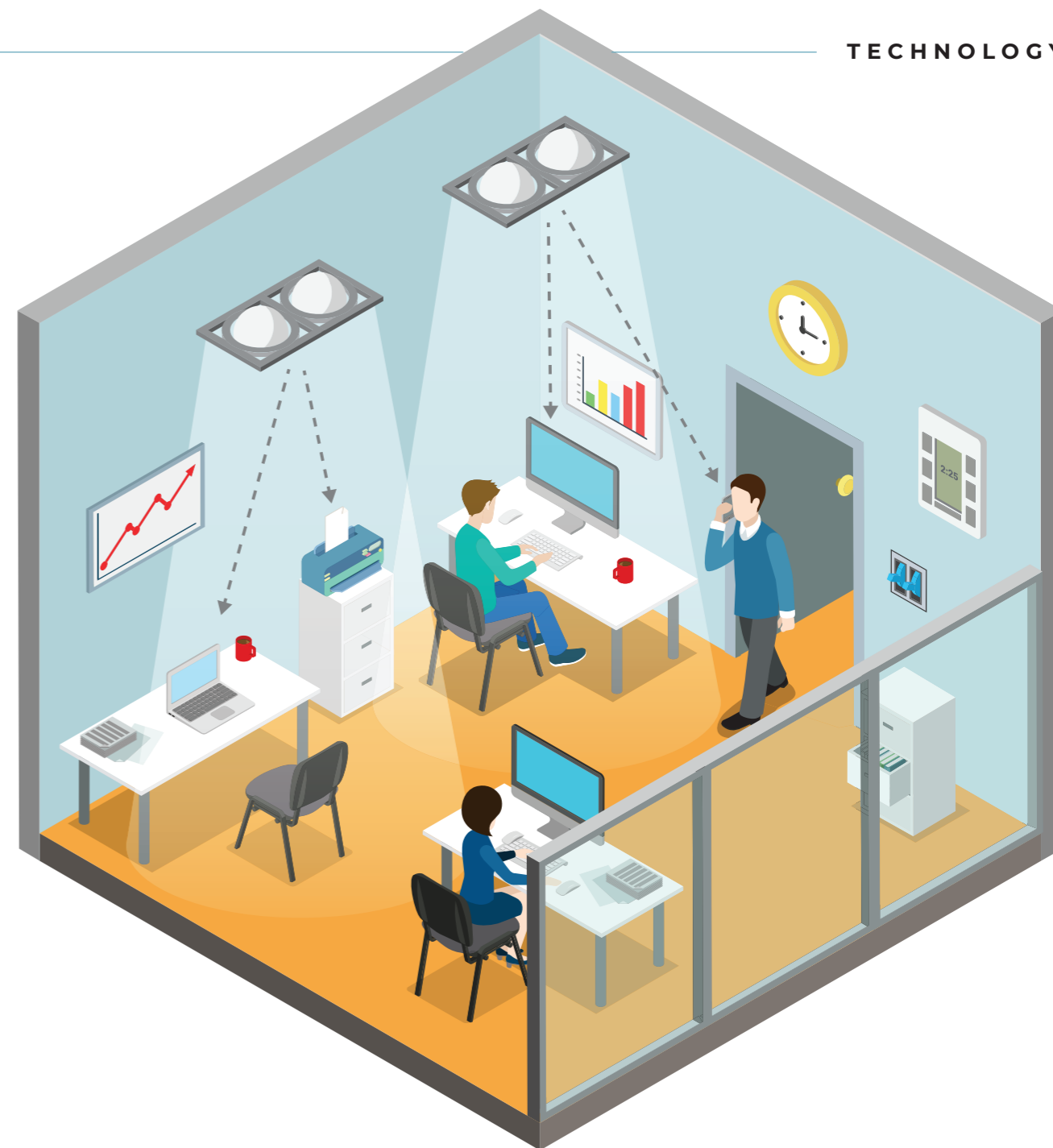
In the past two centuries, technology has dramatically changed the way we communicate. In 1800, if you wanted to send a message to someone, you wrote a letter and you needed a messenger on a horse to deliver it. Today, wherever we are, we can send an e-mail on a mobile device with a wireless connection and that message arrives instantly anywhere in the world.

Between the horse and the mobile phone lies a series of groundbreaking 19th century inventions from Samuel Morse’s telegraph and Alexander Graham Bell’s telephone to Guglielmo Marconi’s radio. All these inventions centered around electricity and radio or sound waves. Today, essentially the same technology drives WiFi and 5G communication.

There is a problem with that radio wave-based communication, as a young French professor of quantum physics at the University of Versailles, Suat Topsu, discovered in 2005. One day that year, Topsu came home and his wife, who was pregnant with their third child, told him she had seen a French television documentary on the health dangers of radio waves. In response, Sara Topsu decided that the WiFi in their home had to be switched off to protect their new baby’s health.

Her husband protested that he needed to access the Internet with his computer for his work. Topsu also tried to convince his wife that radio waves were not as dangerous as the documentary had argued. He had studied a report of the World Health Organization (WHO) on the effects of radio waves on living organisms, based on thousands of scientific studies. However, unfortunately, upon further reading the report also stated that pregnant women and their babies were particularly susceptible to prolonged exposure to radio waves. Sara Topsu was determined: “You are a researcher. Find another solution.”

Installing cables throughout their home seemed a complex, expensive, and time-consuming solution. Instead, Suat Topsu’s scientific mind was stimulated—why was there no better way to communicate without health risks? At his university, Topsu was involved with autonomous vehicle experiments using the LED lights of cars for inter-vehicle communication. He had discovered that cars could ‘talk’ to each other through their headlamps and brake lights. Inspired by his communication challenges at home, Topsu



dove into the scientific history of communication technology. In the library of the university, he made a surprising discovery.

Four years after he had invented the telephone, Alexander Graham Bell created another invention that he himself considered his greatest. On June 3, 1880, in Washington, D.C., Bell communicated with his assistant Charles Sumner Tainter over a 700 feet distance from the roof of the Franklin School on Franklin Square to Bell’s laboratory in L Street using modulated sunlight—instead of modulated electricity—as a means of wireless communication of sound. Shortly before his death in 1892, Bell said in an interview that the “photophone” was “the greatest invention I have ever made, greater than the telephone”.

Bell used a system developed by Samuel Morse four decades earlier. Morse had demonstrated that it was possible to communicate over vast distances with light signals. By

turning lights on and off, messages could be communicated to a distant observer using ‘Morse code’. Bell succeeded in adding an audio channel to Morse’s system.

Sunlight, however, was not a reliable source for communication. Clouds tended to interfere, and there could be no communication at night. Bell invented the photophone a year after Edison had introduced his lightbulb. So, there was artificial light. However, that light could not transmit information because it would not flicker fast enough. A person using his finger could tap out Morse code much quicker than a light could be switched on and off. This was why the telephone became more popular than the photophone, and why electricity and radio waves became the primary channels for communication for the next 100 years.

When Topsu read about the photophone, he immediately realized that what was not possible with low frequency incan-

SHORTLY BEFORE HIS DEATH IN 1892, BELL SAID THAT THE 'PHOTOPHONE' WAS 'THE GREATEST INVENTION I HAVE EVER MADE, GREATER THAN THE TELEPHONE'

descent light in Bell's days, was very much possible with high frequency LED light. The microchip of the LED produces light at high-speed—like the sun. It was possible to multiply the speed of the 'Morse-blinking' of light to 100 million times per second (100 MHz). That would mean that enormous amounts of information could be transmitted even faster—at the speed of light. LiFi was born and the problem of Suat Topsis's wife could be solved. Topsis's discovery stands to change the Internet, the online world, and communication technology in profound ways.

There are several compelling reasons why LiFi will rapidly advance throughout the world. It offers much faster communication with much more bandwidth; it offers supreme security; it is safer from a health perspective; it provides communication in situations where radio waves cannot go, and, finally, it does not require massive infrastructural investments.

We are entering a new era that has been coined the 'Internet of Things' (IoT) where all information will be stored in 'the Cloud', rather than on your computer. Today, most communication is still between people—people talking to each other on the phone and people sending texts, e-mails, and audio messages to other people.

It is estimated that in 2025, a person in the industrialized world will own an average of seven connected devices. Most of us will have a computer, a cell phone, a camera, a smart fridge, intelligent keys, intelligent heating and cooling systems, security devices, et cetera. All of these devices will talk to each other, receive instructions, and act by analyzing the information using artificial intelligence (AI). That is the Internet of Things.

In your car, you will find a message that there is no more milk in your fridge. On your phone, you will turn the heat in your apartment on and off. The coffee machine will start brewing according to your preferences while you are in the shower. At the same time, millions of self-driving cars will find their ways through constant communication over mobile networks. All of that communication requires bandwidth.

The 5G cellphone network that is currently being introduced offers broader bandwidths and faster speeds. It promises to take the present overloaded and clogged system that operates at a maximum speed of 100 Mbps per second to a new online universe at one Gigabit per second. That is an improvement

with a factor 10 at the cost of billions of dollars, the installation of thousands of new antennas, and a massive increase in radio wave exposure. However, it may not even be enough. Given the exponential increase of data traffic that is happening simultaneously, some experts predict the 5G network will be saturated within five years after its introduction.

When traffic increases in urban areas and highways get clogged, governments respond with infrastructural investments. They add new lanes to the freeways. The problem with data communication is that there is not enough space to add new lanes. There are simply not enough frequencies below 10 GHz—the spectrum used for civil, non-military, communication—to enable all data traffic.

We are already experiencing that operators regularly use the same frequencies, which means the baby monitor in your home could disturb your neighbor's wireless phone. Providers try to overcome these problems with stronger signals which only invite other, stronger, more energy-intensive signals, leading to an online cacophony and a waste of energy.

On the other hand, light—including ultraviolet and infrared lights we cannot see—offers a very wide spectrum of frequencies. There are a few thousand frequencies available for radio-based communication. The full spectrum of light, on the other hand, offers a billion frequencies—one specific frequency for every eight people in the world. In other words, there are no limitations, and we will not run out of capacity if we begin to use light-based communication. That is simple physics.

Physics also tells us that nothing moves faster than light. We need only look at the television or live Internet video to realize how frustrating it is that light travels faster than sound—someone's mouth moves a split second before we hear the voice. Scientists in China have shown that LiFi can provide 252 gigabits/second, 2,500 times faster than the best networks today and 250 times better than 5G. Light-based Internet—fiber optic networks combined with LiFi—will open doors to a whole new dimension of content opportunities and innovation.

The opportunity comes with something that, today, is rare: highly secure communication. The word 'LiFi' was inspired by 'WiFi' which was, in turn, inspired by 'HiFi'—or high fidelity. HiFi was the word used to describe the high-quality audio systems introduced in the 1970s. The audio that HiFi provided was very close to original concert sound—the 'fidelity' was very high. In the same way, WiFi is wireless communication very close to the original digital communication provided by cables. However, the fidelity of WiFi is far from perfect. Today's Internet is a highly insecure environment, and that is something LiFi will correct.

Despite the complex systems with codes, and response mechanisms with safe keys and firewalls that banks and other companies use to protect accounts, every system can be hacked. The problem is that WiFi was never designed for security. Rather, it was designed for easy connectivity. WiFi works like a radio: once



you tune to the right station—or hotspot—you get the music or connection you desire. Both systems are 'one way'. A radio station does not know who is tuning in and listening.

The same applies to hotspots. Everyone can join a hotspot as long as you have the access code or password, which may seem like a major hurdle. If you are an experienced hacker working with a powerful supercomputer able to run a billion iterations per second, it is not. Radio waves are able to pass through walls so that hackers can work quietly and in their own spaces without being noticed.

A LiFi connection, on the other hand, only works directly in the light beam. The direct light connection means that a hacker has to be standing next to you... Moreover, LiFi is not a radio station to which anyone can tune. It can be designed to ensure that only those who should have access can, indeed, have access. Each light provides a unique connection point, or ISP address. Once a user connects, the connection is theirs and theirs alone. Each LED lamp consists of five, seven, or eleven diodes that jointly produce the light. Each diode can provide a unique connection, providing a connectivity density that, so far, has not been possible.

Here is what that means: People like to share their experiences at big sports or music events with their friends on social media. So, when Lionel Messi is about to hit a penalty

kick in a stadium with 100,000 people, many of them have their cameras ready to capture the moment. Subsequently, it turns out to be impossible for all of these fans to upload their pictures at the same time—there simply is not enough bandwidth available.

With LiFi transmitted over the thousands of lights in the stadium, there can easily be enough bandwidth for all the fans. Every user will be able to connect to the next diode with another unique connection. And because there are an estimated 14 billion public lights in the world and each of these lamps will have many diodes, there are billions of connections possible.

As light does not pass through walls, it does not go through our bodies either. Radio wave-based communication, however, is suspected to have a negative impact on our health, as Sara Topsis learned watching French television. We know there are certain environments in which we need to be careful with cell phones because they may cause dangerous interference. We should not make calls while getting gas as there is the risk of explosion. We are asked to turn communication devices off when we are on planes as research shows that a concentration of radio waves can interfere with sensitive electronic systems for navigation and communication.

Other research illustrates the impact of radio waves on the growth patterns of plants. Their cells do not divide according to healthy, natural, and predictable patterns. We also know that radio waves can distort the migratory patterns of birds, causing them to lose their age-old routes and end up in places where they have never been before. In other words, radio waves can impact the behavior of machines, plants, and animals.

The intensity of radio waves continuously increases. In the center of big cities, your phone can connect to dozens of hotspots. With that intensity, we will experience increased interference and dropped calls and lost connections. The industry only responds by erecting more antennas for stronger signals increasing the intensity of the radio waves. We have no idea what this exposure will do to the bodies and health of humans in the long term.

The millennials are the first generation growing up in the midst of radio waves in their environment at the modern levels of intensity. We will know much more after a few decades, once they have begun to age. In the meantime, the World Health Organization (WHO), after consulting many of the world's leading experts, recommends—from a precautionary principle—that we should avoid exposure of radio waves beyond 620 millivolts per square meter. The good news is the LiFi can replace radio wave communication in many situations—from homes and offices to hospitals and cars—and dramatically reduce the exposure to radio waves.

Another advantage of LiFi is that it can provide communication in situations where sound cannot go. Today, the most obvious shortcoming of WiFi connectivity is that it 'ends' when we

LIFI OFFERS VIRTUALLY UNLIMITED BANDWIDTH: THE FULL SPECTRUM OF LIGHT OFFERS A BILLION FREQUENCIES—ONE SPECIFIC FREQUENCY FOR EVERY EIGHT PEOPLE IN THE WORLD.

go underground. You cannot make calls underground, because there are no antennas powerful enough to pass through the ground. Radio waves can pass through most walls, but they are blocked by the solid concrete and steel that frames underground structures from parking garages and tunnels to mining shafts and metro stations. This means that we cannot reach people if there should be an accident in a mine or a terrorist attack in the metro.

In these situations, LiFi, however works if there is light. Mines and tunnels have electricity lines, and LiFi makes it possible to transform these existing power networks into lifelines. This means that, in emergency situations, we can know exactly where people are. Underground transportation systems provide another logical opportunity for LiFi. Light-based commu-



nication can guide blind people through metro stations and tunnels with nothing more than a cell phone and the thousands of already existing lights.

LiFi also offers exact geolocation. Today, we regularly walk in the wrong direction searching for a restaurant because the GPS technology of our mobile phones can easily be 30 feet off and it takes time to determine where we are. Communication with a streetlight at the speed of light makes it possible to determine someone's location instantly and within inches.

Warehouses provide yet another great opportunity for the introduction of LiFi. Today, packages at UPS, FedEx, Amazon, or DHL facilities, containers at a terminal, or parts of an assembly line, have bar- or QR-codes that are continuously scanned as products move through distribution systems or supply chains. That scanning process is a vast improvement over the manual supply management of a few decades ago.

LiFi, however, will further revolutionize this process. Instead of a code that needs to be scanned, all products will be fitted with a small 'I am here' diode. This diode will automatically identify products as they move through the beams of LED lights. This eliminates the need for manual or automated scanning, and it will always be clear where any product is. Every single part can be tracked from its point of production throughout its journey using trucks, trains, or planes, up to its transfer station and warehouse, and then to its final customer or assembly line.

Light-based communication will make logistics infinitely easier, more efficient, and more transparent. LiFi will smoothly and efficiently lead you through the aisles of a supermarket once you have put your shopping list in your phone: you will never come home any longer without the product you could not find. Nurses in hospitals will no more lose precious time locating beds or medical equipment.

Similarly, in a LiFi world you will never 'lose' your car anymore in a parking garage because your phone knows exactly where it is. And, think about what LiFi means for driverless cars that now communicate with each other at the speed of sound through a satellite 35,000 kilometers away in outer space. LiFi enables cars to instantly communicate with each other at the speed of light using their lights.

Soon, airlines will use LiFi for their inflight entertainment. More and more airlines aim to offer all of their entertainment through WiFi on board their planes. There is a simple reason for this. Currently, video screens at passengers' seats are connected to copper wires. This means that there is a lot of heavy wiring under the seats. Airlines want to reduce the weight of aircraft to save fuel. In other words: replacing existing hard-wired connections with WiFi makes sense.

At the same time, the WiFi intensity within the metal

walls of a plane will vastly exceed the WHO recommended maximum norm for exposure to radio waves. LiFi eliminates the heavy cables and creates a healthier environment on board. TV, phones, tablets, and phones can all be fed through the individual overhead lights above each seat at speeds no one has so far experienced in the sky.

The technology benefits of LiFi are huge. And these advantages come without the need for massive infrastructural investments in cables, cell phone towers et cetera. It is estimated that it requires between € 300 and € 500 billion to establish the new 5G network throughout the European Union. However, the light infrastructure already exists. As we have seen throughout this book, artificial light is everywhere. We merely need to replace the light bulbs with new LED ones that include a LiFi chip.

That new LED light provides very substantial energy savings that basically pay for the replacement: LiFi can be introduced for free... LiFi also allows developing countries to leapfrog and catch up. They do not need billions of dollars to invest in optic fiber cables and a new communication infrastructure. Instead, they can provide high-speed Internet using simple ADSL technology everywhere their electricity networks reach.

LiFi does not even need new phones. Our current phones have front and back cameras and flashlights that can connect to a light source. The backlit screen consists of multiple LED lamps, as well. Each of these lights can provide a connection. Each of these connectors could be transformed into a series of parallel connections to let information flow without interruption. This is what makes LiFi very reliable.

LiFi will not work everywhere—it needs electric LED light. That means there is no LiFi on the beach or in the mountains. For these places, radio wave-based communication will remain the primary medium. However, given the great benefits of the technology for the urban environments where most people work and live, LiFi will come fast. Pioneers as Ellipz LiFi (see interview with CEO Frans Otten on page XX) have developed a 'dongle'—much like the device we used in the early days of WiFi—that allow a computer to connect to a LiFi-enabled LED light.

LiFi also offers revolutionary applications beyond what is available today. Ellipz LiFi has introduced a LiFi-enabled mask that divers can use to communicate under water. The mask has an LED light that is able to transmit communication to the mask of another diver that has an LED light as well. This is a groundbreaking innovation as, so far, divers cannot communicate with each other under water.

In Japan, Ellipz LiFi has installed a LiFi-based application to prevent transmission of disease in hospitals. It is well-known that hospitals are a major source of contagion. Nurses and hospital staff can prevent a lot of that contagion through better hygiene practices. Ideally, nurses should wash their



hands between visiting different patients. However, during busy days that not always happens as planned. In one Japanese hospital, nurses now carry a LiFi-enabled buzzer. When a nurse leaves the bed of one patient and visits the next patient without spending 25 seconds at a fountain, the buzzer sounds an alarm. The system works because the LiFi-enabled lights in the hospital exactly track every move of the nurses. Ellipz offers a similar 'Rinse & Go' system to companies who want to make sure that their employees can only enter their offices after washing their hands. The precise determination of location that LiFi makes possible, allows for many more of such new ways to use technology to improve and protect lives.

Almost 150 years after Alexander Graham Bell invented his photophone, LiFi introduces a new dimension to the miracle of artificial light and stands to revolutionize communication.



Excerpted from **Gunter Pauli and Jurriaan Kamp: Light Solutions, Saving energy, healing people and planet**



'LIFI COMES WITH BIG HEALTH BENEFITS'

ELLIPZ LIFI IS ONE OF THE PIONEERS OF THE LIFI COMMUNICATION TECHNOLOGY. JURRIAN KAMP SPOKE WITH CEO **FRANS OTTEN** ABOUT THE INTRODUCTION OF THE FIRST MOBILE PHONE OFFERING LIFI, AND THE OPPORTUNITY TO INTRODUCE HEALTHY LIGHT WAVE COMMUNICATION IN SCHOOLS.

JURRIAN KAMP: *Communication over light waves technology (LiFi) was reinvented—after Alexander Graham Bell in 1880—by professor Suat Topcu in France in 2005. More than 15 years later, still very few people are familiar with the word “LiFi”. Why is that?*

FRANS OTTEN: “Few people realize that the first experiments with ‘WiFi’ date from the 1970s. But the commercial breakthrough only started when Apple introduced WiFi in their computers in 1999. Subsequently, WiFi really took off with the introduction of smart phones in 2007. LiFi follows a similar path. The technology is available and will take off as devices will offer it. That will soon happen as the spectrum of radio frequencies is rapidly getting saturated because of the emerging Internet of Things.”

'A SIMPLE, NON-EXPENSIVE UPGRADE OF EXISTING LIGHTING INFRASTRUCTURE ALLOWS FOR DATA COMMUNICATION VIA LIGHT'

Can LiFi reduce energy use?

"Using the existing lighting infrastructure limits the energy consumption that is necessary to power communication via antennas."

LiFi only works in the beam of an LED light. Most people live their lives moving around with their mobile phones. Will LiFi offer enough connection in a fast-moving world?

"LiFi is not intended to replace radio wave-based connection like WiFi and 5G but to further maximize the way we connect. LiFi will offer superior communication when there is light. There will be places where LiFi cannot offer connectivity and where we will continue to use WiFi or 5G. Our devices will seamlessly switch between these different technologies."

LiFi communication cannot be hacked, say the experts. Or are we just waiting for crime to catch up with this new technology?

"You can never exclude the possibility that crime catches up. The reality is that LiFi communication is specific to a particular light beam. You can only hack that communication when you have a device in the same light beam. It should always be possible to detect that."

What is your favorite LiFi application?

"LiFi comes with big health benefits. Light, contrary to sound waves, does not penetrate the body. Many studies show possible negative health effects of too much radio wave exposure, especially for children.

LiFi allows for unlimited communication without any negative health impact. Introducing LiFi in schools presents a big opportunity and can be funded through the energy savings that LED lights will provide."

Finally, when will LiFi be a common experience as WiFi is today?

"For LiFi to become mainstream, we need LiFi-enabled mobile phones and an infrastructure that is upgraded from lighting/electricity only to integrated electricity and data communication including LED LiFi lamps. The LiFi hardware is ready today. We need to start with the infrastructure upgrade now. We have seen how fast the mobile networks could be installed..." [JK]

When will LiFi be offered on a mobile phone?

"Chinese smart phone manufacturer Oppo has already announced the launch of their first LiFi phone. This introduction will speed up the adoption as other manufacturers will likely follow."

LiFi is presented as major solution to increasing bandwidth challenges. Why?

"The radio (soundwave) frequencies available for public (non-military) communication are nearly all being used. The spectrum of light frequencies is much wider. Moreover, LiFi does not have interference problems. Where there is LED light, LiFi can be available."

Why is LiFi cheaper than 5G?

"The new infrastructure for 5G is very costly. It is not an upgrade of the 4G technology but a different way to produce radio wave-based communication. 5G also needs many more antennas than 4G. As for LiFi: a simple, non-expensive upgrade of existing lighting infrastructure allows for data communication via light. LiFi only requires the installation of LED lamps. The investment in energy efficient LEDs can quickly be recouped."

By some estimates, Internet waste comes to more than 7 kilograms per inhabitant of the planet. How can LiFi reduce that waste?

"More LiFi communication means we can reduce other cellular communication like 5G. That means fewer antennas and other essential infrastructure for wireless radio wave-based communication. LiFi is integrated into LED lamps which have a long lifetime. LiFi also allows for cabling efficiency as electricity and connectivity will be combined into one."

'MILLIONAIRES DO NOT USE ASTROLOGERS, BILLIONAIRES DO'

[Astrology by Pi]

UNDERSTANDING HOW human behavior repeats allows you to not only prepare for what is coming up next. It also gives you the potential to harness what lies ahead. Whether you believe it or not history at least rhymes if not repeats.

Why is that?

Most human beings are reactive rather than proactive. They live in the moment. They are not aware of the fact that the past can often predict the future.

The legendary Wall Street financier and business guru JP Morgan once said: "Millionaires do not use astrologers, billionaires do." Morgan is known to have taken the advice of New York astrologer, Evangeline Adams, on many occasions. She was also connected to Charles Schwab.

HOW ASTROLOGY AND CYCLES PROVIDE AN UNFAIR ADVANTAGE TO THE ULTRA HIGH NET WORTH FOLK

Of course, at the time astrology was illegal. All form of prediction was outlawed. In 1914, Adams was tried for fortune telling in New York, but was acquitted of all wrongdoing. Many papers quoted the judge's decision that she "had raised astrology to the dignity of an exact science".

It is a well-documented fact that President Ronald Reagan and his wife Nancy were big believers in astrology. Several of his inaugurations and installations took place at very specific times that had been "elected" by the positioning of planets.

In the 1970s, the Organization of Oil-Exporting Countries (OPEC) was headed up by Sheikh Yamani. It is a little-known fact that he was an expert practitioner of astrology. This was one of the reasons why OPEC became so powerful in controlling the economies of the western world. The Middle Eastern oil crisis of the mid 70s was such an example. A geopolitical event controlled entirely by one party.

Astrology has always been either marginalized or trivialized. Is this because certain people know that it works, and they want to keep others off the trail?

In days of old astrology and astronomy were one of the same thing. Many Kings Queens and leaders had advisors in their courts preparing them for may lie ahead.

Putting it simplistically, we have four seasons in every year. Spring, summer, autumn and winter together representing a cycle of birth, growth, death and rebirth. The Sun cycle recurs every 365.25 days. Add to this the various planetary cycles and we get several more hands on our watch. Not only do we now get a much clearer picture, but we are also able to see further ahead into the future.

We can take this a stage further by observing how all these cycles interact with each other creating a 'Great Universal Dance'. World events unfold as the tempo and beat changes. Watch carefully and you will see the moods of mass consciousness ebb and flow.

The knowledge and use of cycles and astrology is prolific amongst ultra-high net worth individuals in the present day.

A huge amount of discretion is clearly maintained but I can assure you that I know this firsthand. I speak with several such thought leaders and captains of industry.

Ignore this little understood, yet sacred, science at your peril.



The secret to making an impact is small.

It's one individual, believing.

It's one community, sharing.

It's one organization, listening.

It's one founder, creating.

It's one fund, caring.

It's thousands of investors coming together with a care that's mutual in a fund that is too, ready to tell the big financial world, welcome to Domini, where the power of small is the greatness of all.



Invest in the Domini Impact Equity FundSM
Learn more at domini.com



1.800.225.FUND

@DominiFunds

domini.com

Domini.

Investing for Good[®]

Before investing, consider the Fund's investment objectives, risks, charges and expenses. Contact us for a prospectus containing this and other information. Read it carefully. The Domini Impact Equity Fund is not insured and is subject to certain risks including impact investing, portfolio management, information, market, recent events, and mid- to large-cap companies' risks. You may lose money. Shares of the Domini Fund are only offered in the United States. DSIL Investment Services LLC, Distributor. 5/21