CROSSOVER WORKS #3

INNOVATING WITH THE CREATIVE INDUSTRY

This is already the third edition of *Crossover Works*, because we are nowhere near finished innovating. The need for game changers with smart, actionable ideas is greater than ever. That is why we have made another inspiring selection of crossovers with the creative industries – impressive discoveries that resulted from unique collaborations with other key sectors. And we hope that this is just the beginning.¶

CROSSOVER WORKS #3
INNOVATING WITH THE CREATIVE INDUSTRY

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Unlikely combinations

What are crossovers, exactly? This is the third book that shows examples of unique collaborative projects between the creative industries and other key economic sectors. Designers are masters of collaborative thinking, unconventional thinking or offering a healthy dose of scepticism. They can anticipate change and help to achieve it. Above all, whether it concerns a product, service, process or a complex whole, designers have the ability to find solutions that are functional and visually appealing, as well as sustainable.¶

Innovation arises at the edges of familiar practices and surprising discoveries are often the result of new combinations. The creative industries, named one of the key sectors by the Dutch government, cannot compete in terms of scale with other leading sectors like water management, energy, agriculture or life sciences. But that is precisely the point. The creative industries don't operate in splendid isolation, but exist to add value to what is happening in other sectors. This can lead to games that help save lives, houses that make dependence tolerable, smart toilets for developing areas and jeans made from reclaimed plastic.¶

Remarkably, with nearly all the case studies mentioned in this book, the client and the service provider do not have a classic hierarchical relationship, but operate as equals. They are not opposed to the unknown or unpredictable, but embrace the importance of research and experimentation. In these instances, either the clients have dared to give the designers the space and trust to do their work, or the designers have taken the initiative before even being approached by the client. This behaviour fits wonderfully into the social movement we are seeing all around us: from vertical to horizontal, from centralised to decentralised, from top-down to bottom-up.¶

The essays in the publication are an encore to the case studies and explore even bigger issues. How can creativity and design thinking contribute to consciousness and sustainability? What are the latest developments in wearables? How can we deal with the elements and anticipate natural disasters? They are all challenges that cry out for a crossover mentality.¶

We hope that *Crossover Works 3* is once again a showcase of ideas that persuades and tempts clients, executives and other relevant industry players.¶

Madeleine van Lennep,
Director of the Association of Dutch Designers (BNO)

Madeleine van Lennep at the building site of the 3D Print Canal House. Photo: Jochem Jurgens

CASE 01

AbcdeSIM

Saving lives with a game

AbcdeSIM is the first game in the Netherlands to be recognized as a complete training tool. This crossover between medical science and the gaming industry is proving highly effective for learning to save lives.¶

At A&E departments, you'll often find a poster on the wall with the standard steps for stabilizing admitted patients as quickly as possible. "When every minute counts, the five steps – A, B, C, D, E – need to be automatic," says Evert Hoogendoorn at IJsfontein. To accomplish that, he worked with medical specialists from Erasmus MC and medical information experts from the University of Twente to design a serious game for training doctors, nurses and students. It is a real, almost 'addictive' game that effectively solves the problem of a shortage of time and trainers; it can be played without any additional guidance.¶

Players have 15 minutes to stabilize the virtual patients. Just like in real life, what is wrong with the patient is unknown. The player reaches the required level only when the ABCDE method is quickly and correctly applied. "Of course it is just algorithms and pixels, but the patient on the screen behaves exactly like a flesh and blood person," says Hoogendoorn. "We have built in cardiovascular, respiratory and medication models. The model of the circulatory system simulates the pumping of the heart and calculates the blood pressure. The influence of the virtually administered medicine is also precisely calculated."¶

Now that they are working on the fifth edition of the game, it is doubtful that there is another game designer with as much medical knowledge as Hoogendoorn. "Practically speaking, I am not of much use if something happens to you, but I now know a lot about how the body reacts to various operations." Vice versa, the supervising internist from Erasmus MC now knows a lot more about the endless possibilities of gaming. "This exchange has led to enormous gains in quality."¶

www.abcdesim.nl | www.ijsfontein.nl

3D PRINTED CANAL HOUSE

Canal ring version 2.0

A 3D-printed canal house: It might sound like science fiction, but in the meantime, the walls are growing line by line. Anyone who takes the ferry to Amsterdam-Noord can see it with their own two eyes.¶

Just across the water behind EYE and the Tolhuistuin stands a white construction trailer where all the action happens. As soon as you enter you hear the 3D printer going back and forth – a scale model of its gigantic brother in the garden, the 'Kamermaker' (room maker). It is specially designed to take 3D printing to a higher, or better said, bigger level. There are no small objects, instruments or prostheses being printed here, but rather an entire house. The architects at DUS were convinced that it was possible, and put their ideas into action. We're standing on the brink of a new Golden Age, they say in their brochure. They are actually working on version 2.0 of the canal ring.¶

The impact on the construction process is immense. The portable printer does all the work on site, saving considerable man hours as well as transport time. Construction waste is no longer an issue, because you only print exactly what you need. "We can actually use waste to make it," says exhibition manager Tosja Backer. "The process is cheaper and more sustainable, and the house is finished more quickly. The nice thing about 3D printing is that you can add lots of detail without incurring additional costs – the ornamentation of years gone by is coming back in a whole new way."¶

But they are not there just yet. "It is completely reinventing the wheel," says Backer, "learning by doing." And it is all happening out in the open. The workshop is open to everyone – 'open source design' as it is called. Cross-sector collaboration also plays a role. Heijmans is contributing their ideas to the construction, and chemical company Henkel is providing the (bio)plastics that it is made from. The world's first 3D-printed canal house should be finished in about three years. "That doesn't mean that we'll stop with our research," says Backer. "We will certainly continue to explore the possibilities of 3D."¶

www.3dprintcanalhouse.com | www.dusarchitects.com

DESIGN FOR AWARENESS

The art of attracting attention

In the continuous stream of imagery that reaches us every day, a half-destroyed rainforest in the shape of green lungs is hardly distinctive and barely effective. With their own unique way of thinking, creatives can help to actually open people's eyes to social issues.¶

Bas van Lier

Between the hands of a clock at five to twelve, a seal is crushed. On the ocean floor, a coral reef grows from plastic bottles. A woman lavishly draped in diamonds takes a bite from a hamburger filled with cigarette butts (Don't swallow other people's smoke). A collection of 60 advertisements online, awareness campaigns for issues like plastic in the oceans, deforestation, animal abuse and domestic violence, all have one thing in common – they try to generate awareness with scenes of horror. 'If you close your eyes to the problem and do nothing, this is what lies ahead,' the images say.¶

Occasionally the images are indeed haunting, and sometimes even provocative. But the question is whether they will make many people stop and notice the actual problem. We see so much, every day. Cleverly deceptive Photoshop productions that draw attention to one brand or another. In between it all, you barely notice the half-cleared forest in the form of human lungs. 'Deforestation. Too bad,' you think as you turn the page or continue on your way to the shop.¶

Mockumentary

As the primary goal of visual communication is to generate awareness, it is remarkable that so much of what is published only moderately fulfils that requirement, let alone achieves anything. Advertising is largely made up of repetition, and even then the conversion rate (the percentage of people that take action after seeing an advertisement) is usually not very high.¶

There are exceptions of course, and it has to be said: Often a type of design thinking has the upper hand. With design thinking, the problem is examined with fresh eyes and approached from a different angle. A good understanding of the context and target audience leads to creative, yet well-thought-out results. A new perspective or reversal is often the hook that grabs the public's attention.¶

Take the video 'The Majestic Plastic Bag' for example, which activist organization Heal the Bay used to draw attention to their efforts to

▸ Brazilian campaign for a smoke-free environment. Design: Fórmula Comunicação. Photo: Marcelo Nunes
▸ Campaign by BUND for endangered species. Design: Scholz & Friends/Sebastian Frese. Illustration: Peppermill Berlin

ban plastic bags in southern California. Filmed like a nature documentary, this mockumentary follows a plastic bag on its journey filled with danger and obstacles from a supermarket to the Great Pacific Garbage Patch. Actor Jeremy Iron's voiceover is a perfect match for Sir David Attenborough's understated commentary in his films. The Majestic Plastic Bag does not sketch a doom scenario, but rather presents the actual reality. And in such a compelling way, that the film attracted millions of viewers worldwide. Heal the Bay collected tens of thousands of signatures and eventually managed to get disposable plastic bags banned in Los Angeles as of 1 July 2014.

Double effect

Every year since 2007, UNICEF has conducted a campaign to help children – and their parents – access clean drinking water. Worldwide, 1,400 children die every day from contaminated water and a lack of proper sanitation. The latest promotion in this campaign had a kind of double effect on public awareness. Measured by a special app, anyone that didn't use their telephone for ten minutes during World Water Month in March 2014 was rewarded with a day of clean water for a child in need, paid for by sponsor Armani. 'Many children lack clean water. How long can you go without something much less vital, like your telephone?' was the question they posed. This promotion also made people stop and consider their smartphone use. The campaign delivered more than 200 million telephone-free minutes, which must have been a relief in many aspects for all involved.

Sweetie unmasked

As the above example shows, non-profit organizations generally have the difficult task of repeatedly asking attention for the same topic. So when there is actually something new to report, you have an exceptional opportunity to get the world's attention. But then you have to do it right. In that respect, the Sweetie campaign from Terre des Hommes and ad agency LEMZ has more than earned its avalanche of awards (including the Grand Prix for Good, five golds and one silver at the Cannes Lions).

With one well-placed blow, the world's eyes were opened to the rapidly growing phenomenon of child sex tourism over the webcam. The UN and FBI state that at any given moment, there are about 750,000 paedophiles worldwide contacting children online, often in Asia, for unpaid webcam sex. Sweetie has literally made this abuse visible by giving a face to a barely recognized yet immense social problem. Design thinking often involves a reversal of mindset, a different approach than usual. Sweetie is a good example of this. Terre des Hommes fights child exploitation in developing countries with projects

related to education, healthcare and independence. The focus is therefore primarily on providing help to the (potential) victims.

To address the phenomenon of webcam sex tourism, Terre des Hommes and LEMZ decided instead to focus on the perpetrators and take on the role of the negligent criminal investigators. Using the latest computer simulation techniques, they created an adorable Filippino girl, a virtual Sweetie to lure in paedophiles. It was quite an unusual move for a non-profit organization that normally sets up schools and healthcare projects.

But the gamble paid off. Within two months, Sweetie was approached by 20,000 men. With the help of public records, Terre des Hommes was able to identify more than a thousand perpetrators from 71 countries by name. Sweetie's lovely face, the disclosure of the clever deceit and especially the staggering amount and blatant shamelessness of the criminals put webcam sex tourism on the public agenda in one fell swoop. More than four million people watched the project's YouTube video, it was covered in the international press, the United Nations Human Rights Council added this phenomenon to their agenda, and police departments inquired about the innovative investigation techniques. Politicians and police in the Philippines also woke up to the problem. The first arrests have already taken place. Take that, sex tourist!

Peter deserves it

In a completely different way, Dutch strategic design studio Oak & Morrow used the capabilities of the internet to influence a discussion about eliminating personal budgets in the healthcare sector. Together with vla productions, they made an interactive documentary called 'The Story of Peter'. The film is the personal initiative of Arjan Schotel (vla) and Jeroen van Geel (Oak & Morrow). It tells the story of Schotel's handicapped brother, who thanks to his personal budget receives care that is tailored to his specific situation.¶

In several chapters, the documentary candidly shows epileptic Peter's daily life, including all the help that he receives. Both before and after, the viewers can indicate if they think Peter is worth the 74,000 Euros. For whatever it is worth, the results show that many people were convinced by this production: The number of favourable votes increased from 56 per cent at the beginning of the film to 90 per cent at the end. Here it is primarily the format that does the convincing. It invites you to watch, keep clicking and delve deeper into a life that has quality thanks to the available help.¶

Blooming solution

The internet is a wonderful medium for reaching a large group of people. But sometimes you can still do without it. The acclaimed website Osocio.org, where you can find the very best non-profit campaigns, links to a beautifully poetic project in Tokyo. For Cogoo, an organization striving for cleaner cities, ad agency tbwa\hakuhodo dreamed up a way to draw attention to the two million orphaned bicycles that are left in the city each year. They planted seeds in the saddles and transformed these old bikes into the blooming art project Saddle Blossoms. The message was understood: Within one month in a specific area, 40 per cent of the bicycles were removed.¶

All of these examples show the benefits of awareness campaigns that employ creatives with design thinking in their dna. In the aforementioned case studies, you feel the involvement of the makers who flawlessly manage to get to the core of the issue. And usually with a tongue-in-cheek approach that generates an even greater effect.¶

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▸ Saddle Blossoms campaign poster by Cogoo. Concept and design: TBWA\HAKUHODO

STOP ABANDONING BICYCLES.
START GROWING BEAUTIFUL CITIES.

COGOO
CLEAN CITY ORGANIZATION

eSOS TOILET

Smart toilets for emergencies

There is already one being tested in the Philippines: The first 'smart toilet' from Unesco-IHE is not only hygienic, safe and cost-effective, but can also identify health problems.

In disaster areas where many people are living together in poor conditions, diseases are lurking. Sanitation plays an important role – a hole in the ground or overflowing emergency toilets are breeding grounds for bacteria and viruses. If the flow of waste is better 'managed', the risk will be eliminated and the quality of life will improve considerably. Professor Damir Brdjanovich from Unesco-IHE studied the issue, and then took it one step further. He envisioned a smart toilet, one that was not only hygienic, safe and affordable, but was also a source of information about the situation in an area.

The initial results of the study are currently being tested in the Philippines: The Emergency Sanitation Operating System, shortened to eSOS, is being tested here for functionality and acceptance. This lightweight, easy-to-maintain toilet is equipped with sensors that collect the relevant data. Based on this information, the separate urine and faeces tanks can be emptied at precisely the right moment to be processed into water, fertilizer and fuel. And by tracking the average body weight or monitoring the ratio of urine to faeces, experts can identify imminent malnourishment or dehydration at an early stage.

Brdjanovich emphasizes that this is an interdisciplinary project. The request came from Unesco, the innovative software is from Bosnian company Systech and the design is from Delft-based agency FLEX/the INNOVATIONLAB. "We have made a compact package that is easy to transport," explains designer Ronald Lewerissa. "The shipping pallet transforms into the toilet's foundation during installation. The water tanks are incorporated into the walls and the urine tank is part of the stairs. The aim was to make this toilet as functional as possible for the lowest possible price."

www.flex.nl | www.unesco-ihe.org

RAW FOR THE OCEANS

Denim that cleans the sea

Retrieving plastic rubbish from the ocean to make a popular clothing collection: G-Star managed to do just that with the help of Pharrell Williams and Bionic Yarn. "For us, it is about generating awareness for the pollution of the ocean."¶

Pharrell Williams is more than *Happy* – he is the face of the new G-Star collection Raw for the Oceans, which uses more than 700,000 PET bottles. The ocean is polluted with carelessly discarded or left-behind bottles. "Since 2006, sustainability has been high on G-Star's agenda," says corporate responsibility manager Frouke Bruinsma. "And as design engineers, we want to innovate by combining unexpected elements from different sectors." Together with the world-famous rapper and American company Bionic Yarn, they were able to create a delightful surprise: A collection that contributes to a better environment for marine life, which increasingly suffers from all the plastic waste.¶

The principle is simple. Reclaimed PET bottles are pulverized by Bionic Yarn and processed to form the core of an 'eco thread' that feels soft and natural, as the exterior is made from cotton. G-Star is using this thread for a new collection that features stylized octopuses, PET bottles and catchy phrases to draw attention to the plastic problem. The consumer not only buys a special garment with Pharrell Williams' signature, but is also doing something good for the ocean. All-in-all, the first denim made from recycled plastic is a must-have to be proud of.¶

This new approach has had considerable impact on production. "G-Star typically works with fabrics that have already been developed. Now we are starting from the thread, which has caused a bit of a stir." But the investment in change is worth the effort, because this is not a one-off project. "We want to continue to use this thread. The first collection will be launched in September, but the next one is already in development."¶

rawfortheoceans.g-star.com

RAW
FOR THE OCEANS

The Netherlands:
Water land, design land

Our location below sea level has made us smart in the field of water management. The 'Dutch Approach' to the dangers of flooding is reaping international rewards. In the US, Dutch designers and engineers stood out in the Rebuild by Design projects, which are working to limit hurricane-related damage. This offers new opportunities for the creative industries and water management, two key sectors in the Netherlands.¶

Henk Ovink

I left the Netherlands a year and a half ago and now work for the American government rebuilding the greater New York area after the devastating effects of Hurricane Sandy at the end of 2012. Every time I explain who I am and where I come from, the Americans tell me my history. They talk about the polders and the low-lying land below sea level. About our levees and the storm of 1953. About our centuries-long tradition of regional collaboration and the significance of water for our strong position in the world economy. They talk about how we made the Netherlands – conceived, planned and designed it. And about what that actually means, designing a country.¶
It is a compelling story, and one that is also true. For centuries, we have reigned supreme in planning, design and water management. The Netherlands is *made* from land and water. By using clever, design-driven ways to manage risks and uncertainties, we have become what we are today. We have even elevated this approach to an art form; we have the relevant expertise and in practice, we are at the forefront of the designs and innovations that are making a difference worldwide.¶

The Dutch Approach
The Netherlands, water land, has grown thanks to the planning and design of our cities at the crossroads of an international network of waterways. In Europe, the Netherlands is still the market leader in inland shipping and we have the best-protected delta in the entire world. And we keep investing below sea level. Because with climate change, rising sea levels, storms on the North Sea and floods in Germany and France, we know that we will not all reach the 22nd century with the current levels of protection. Water, planning and design should be inseparable from politics, public debate and our priorities for the future. We are completely dependent on good water management, a safe delta and clean drinking water. Our cities cannot exist without water. This is part of the Dutch culture, and we have every right to be proud of that.¶
We are innovating and anticipating the future with the help of our key sectors: water management and the creative industries. Governments, academic institutions, the business world and the creative sector are closely working together on this, both in the Netherlands and abroad. Creating alliances to achieve complex changes is typical of the 'Dutch Approach'. Together, we are doing 'design-driven research'. Distinctive public patronage – the Americans would call it leadership – is essential for transforming the research into concrete physical results and achieving actual reforms.¶

Rebuild by Design

In October 2012, Hurricane Sandy swept through the northeast coast of the United States. It left the greater New York area not only with a trail of destruction, but also more than $70 billion in damage. Sandy also showed that the most vulnerable members of society often live in the most high-risk locations. And the storm reinforced the image of a divided region. After Sandy, there was an immense call for action. There was enormous social pressure on politicians to act immediately and rebuild the city as it was before Sandy arrived. Money needed to reach people and companies as quickly as possible to enable them to rebuild the region from the bottom up. They managed to link slightly higher levels of flood protection standards to the reconstruction funding, but that was about it. There was no regional coordination, no insight into new regulations, and no long-term perspective. The question was this: Within that 'can do' mentality, where the rights of the individual and the power of the community are continuously strengthened by the annual and biannual elections, how can you create a long-term, regional process? One that allows you to make cohesive plans for sustainable, resilient reconstruction? Not plans made in reaction to yesterday's storm, but projects based on the expertise and aspirations of tomorrow. How can design be used to unite people, to make the dangers and opportunities tangible on their own streets and neighbourhoods, and to gain insight into the impact of climate change, social inequality and economic instability in the future?¶

This is how 'Rebuild by Design' was born – for the US, it was a unique process of connecting design and engineering talent with the region's existing talent: residents, executives, entrepreneurs, scientists and community leaders. It was a single, regional, design-driven research process with more than two hundred professionals collaborating in ten teams. They analysed regional vulnerabilities and dependencies, as well as promising locations for new developments and quality improvements. Thanks to the strong coalitions of designers and local stakeholders, Rebuild by Design delivered ten innovative regional strategies linked to concrete, actionable projects. Rebuild by Design was not a plan, but a process of cultural change. The cross-sector teams collaborated on the development of a new, sustainable (in all aspects) and publically supported reconstruction process. Initiated by the Presidential Hurricane Sandy Rebuilding Task Force, Rebuild by Design was itself a unique coalition of governments, research institutions and cultural organisations, funded by six donors, including the Rockefeller Foundation and the JPB Foundation. Rebuild by Design was therefore more of a movement than a project.¶

▴ Oma and Royal HaskoningDHV designed a water strategy for Hoboken.
▾ The BIG U, protective measures for Manhattan by BIG, One Architecture and Arcadis.

Dutch successes

The Dutch Approach was a hit in the US: there is a reason why six of the ten teams have Dutch partners. Of the six winners, four have representatives from the Netherlands.¶

OMA and Royal HaskoningDHV developed a comprehensive strategy for Hoboken: 'Resist, Delay, Store, Discharge'. This robust set of measures would make Hoboken a safe, attractive city once again. They included policy changes for making the city greener, projects for upgrading the sewer system and the addition of water storage facilities in public spaces. The largest water buffer was a new park and actual water safety measures in the form of solid as well as a green infrastructure.¶

In turn, BIG, One Architecture and Arcadis started from the premise that Manhattan, as the city of New York had already indicated, needed to be protected. The team brought two polar opposites of New York

- An impression of the plan for the New Meadowlands by MIT, ZUS and the Urbanisten.
- Interboro and team want to transform the river into a safe green/blue corridor.

urban planning together: Robert Moses and Jane Jacobs. Their approach was like the love child of Moses and Jacobs: On paper, it appears to be one large infrastructural intervention to protect the southern half of Manhattan from floods. But it is developed, tailored, designed and executed location by location, neighbourhood by neighbourhood. It is a method of design that unites water protection innovations and engineering expertise with a community-based approach whereby designs are developed in cooperation with the neighbourhood, residents and stakeholders.¶

MIT, ZUS and the Urbanisten dared to address the issue at a truly regional scale: The Meadowlands become the New Meadowlands. This part of New Jersey has been called the 'sewer'. The mafia has buried bodies here, and pollution and chemical storage facilities dominate the scene. Social and physical vulnerability go hand in hand here. And that is precisely where the opportunity lies. In MIT's proposal,

this region would be changed step by step from a sewer into a gem. It includes an ecological water barrier that can collect water from most floods. This natural area can also be used for recreation, and the new levee will form the basis for a Bus Rapid Transit system to connect the various towns to each other by public transport. It is New Jersey pragmatism combined with Dutch design ambitions and urban planning inventiveness.¶

Finally, Interboro and their team took a similar regional approach, but then along the entire coast of Long Island. The north-eastern storms are notorious and cause high waters in the bays behind the islands; here you do not need Sandy for a serious flood. Currently, Long Island has an abundance of rivers (usually perpendicular to the coastline) which in urban areas have been neglected or destroyed, or have disappeared. And it is not only this coast. The storage capacity and ecological value is virtually zero, and this network of streams no longer provides any quality to cities and towns. Interboro linked reclaiming the Mill River to expanding the storage capacity with a protective system of dams and locks, so if another Sandy occurred, this part of Long Island would be safe. At the same time, instead of the Bay Park water treatment plant pumping excess water into the bay, the river was used to bring the water back upstream to be filtered naturally. Ecological quality, the city and the safety of this region go hand in hand.¶

Living lab
Rebuild by Design shows that our Dutch Approach to design, innovation and investing actually delivers added value. The complexity of global water issues is an enormous opportunity for the Netherlands. We can use it as a living lab, and with the combined strength of the government and the business, academic and creative sectors, we can consolidate and expand upon our leading position. I am convinced that the approach we took in America can and should be used for our own icons and perspectives, not only to keep our delta safe and competitive, but also to make it culturally and qualitatively stronger.¶

Henk WJ Ovink *has worked for the Dutch Ministry of Infrastructure and Environment for many years. His most recent position there was acting Director General of Spatial and Water Affairs. Since 1 April 2013, he has been posted by the Netherlands to the Presidential Hurricane Sandy Rebuilding Taskforce. He is Principal at Rebuild by Design and advisor to Shaun Donovan for the Executive Office of the President, as well as Julian Castro, the secretary of Housing and Urban Development.*

DELIRIUM MONITOR

Diagnosis within a minute

How can you identify delirium in time? The UMC Utrecht had the medical expertise, but not any practical applications. At their own expense, industrial design agency NPK designed a device that is beneficial to the healthcare sector.¶

Half of the patients who are admitted to an intensive care unit and a quarter of all older hospital patients suffer from delirium: acute confusion, anxiety and hallucinations or even complete apathy. Delirium slows down recovery and can have serious, lasting side effects. Unfortunately, making the correct diagnosis had so far proved difficult and time consuming. The nursing staff had to work through long questionnaires on a daily basis, and even then, the outcome was not always clear.¶

Medical technician Willemijn van der Kooij discovered that it could be done differently. A simple EEG scan with only three (instead of 21) electrode patches seemed to provide conclusive results. The next challenge was to make the scan easy to perform, which is not yet the case with standard EEG equipment. Industrial design agency NPK stepped in at their own expense and started searching for a manageable, reliable and affordable solution. "The UMC had the medical knowledge, but our challenge was to translate that to the user and the market," says designer Jos Oberdorf.¶

An intensive search led to a fairly simple solution. According to Oberdorf, "That's the beauty of it." A disposable strip is stuck to the forehead and the relevant brain activity is displayed on the related device in under a minute. "It is comparable to taking someone's temperature," explains Oberdorf. "Accessibility is an essential requirement for the success of this product. We approached the design from the perspective of the comfort of the patient and the convenience of the nurse." The world's first delirium monitor is now in the validation and testing phase. The preliminary results look promising.¶

www.npk.nl | www.umcutrecht.nl

BLENDLE

The best of newspapers and magazines

It required some serious persuasion, but now Dutch and Belgian publishers are convinced. Blendle brings paid journalism to readers in a completely new way – not in a newspaper or magazine, but by the article.¶

Four years ago, he stood in front of a magazine rack in the supermarket. Which one should he choose? There was something that interested him in each one, but no single magazine had everything he wanted. Frustrated, Marten Blankesteijn stood outside shortly after… without a magazine. But it planted an idea in his mind. With the help of internet entrepreneur Alexander Klöpping, it grew to become Blendle, a platform where you can buy individual articles from newspapers and magazines to read and share with your friends for just a few cents.¶

Technically, the platform fell into place fairly quickly; the biggest challenge was convincing publishers to participate in the first search engine for browsing printed media. "The NRC was the first to make a move," says strategist Thomas Smolders. "After that, the rest didn't want to be left behind." Today, this new digital kiosk includes 52 titles, primarily from the Netherlands and Belgium.¶

As a game changer in the publishing world, Blendle is often compared to iTunes. The concept is ideal for anyone who does not want a fixed subscription (and the stack of paper that comes with it), but appreciates well-written articles and is willing to pay for them. And the payment includes another happy surprise: If you don't enjoy the article, you can get your money back. It is apparently working: Four months after the launch there were already 100,000 registered users, 20 per cent of which have already topped up their starting credit at least once. Now that it has conquered the Dutch-speaking market, Blendle is eagerly looking across the border. "We are exploring the possibilities in several countries. I hope that five years from now we will also have a German and French Blendle."¶

www.blendle.nl

Wearable interfaces as a second skin

Since the arrival of the constantly connected smartphone, our lives have been increasingly driven by technology. And newest applications rolling off the assembly line will be worn even closer to our skin. Wearables are the most intimate 'touch points' to unlock the digital world in a targeted way.¶

Iskander Smit

A year ago I put on a Google Glass for the first time. At the time, I already owned the Kickstarter edition of the Pebble watch. Both are early types of wearables and are not yet perfect, but they made it clear to me that this was a new category, with new concepts. A category that required a whole new approach to design.¶

Let's take a moment to consider the definition of a wearable. What makes a wearable different than a smartphone? First, it is how it is used. A wearable is literally something you can wear; it is close to your skin, like a piece of clothing. There are T-shirts that connect to each other online and can 'hug' from a distance. Or smart watches that connect to the web through your phone, and can show you how long it takes to walk to your next appointment. Or glasses like Google Glass that display relevant information on a screen right in front of your eye.¶

As a consequence, a wearable is super personal; you don't loan it to anyone. It's part of your own identity. With the iPhone we all carry the same device. But we completely personalise it with the apps that we choose. With wearables it is just the opposite: The device itself is the defining factor, because it is visible as glasses, a watch or clothing. There's a reason why Apple hires fashion designers. The apps run invisibly in the background and only provide information when it is relevant.¶

Google Glass © Google

Moto 360, the Motorola smart watch. © Motorola LCC

Disney's MagicBand for admission and payment. © Disney

Driven by behaviour
A device like Google Glass is just a warm up for a new operating system for all kinds of personal devices like wristbands, glasses and watches. Android Wear, the Google operating system made especially for smart watches, is its predecessor. It has a much more interesting model than Glass. The screen is relegated to the background and is only displayed on demand. The watch reveals your location, and uses this knowledge to display relevant information. The watch connects your physical behaviour to your personal digital cloud. Even more so than your telephone, your own behaviour determines the type of information that is displayed.¶

The services wearables offer are focused on activities that are happening now and are excellent at 'monotasking'. Pebble already has several good examples of this, including the Next train app that shows how long it will be before the next train arrives. The app only shows trains from the nearest station, and only the next train arriving.¶

The 'There's an app for that' phenomenon that started with the smartphone is getting a revolutionary heir with wearables that match our ad-hoc lifestyle and living in the here and now. We expect that we will no longer need to ask for information ourselves, but that it will simply come to us when we need it.¶

This requires a new paradigm for providers and designers of services. We will no longer make static interfaces; the interfaces will increasingly be able to adapt to the moment. The information displayed will depend on the wearer's situation. And the shape the information takes can also be changed. For example, the Albert Heijn app can change the offers in the supermarket based on the products you have chosen. And it is not just the products displayed in the window,

but the types of offers can also be changed (for example targeted versus inspiring).¶

Continuous data dialogue
An example of our wearables-filled life can be seen with Disney's MagicBand – a wristband that replaces admission passes, and also serves as a method of payment. You can do everything in the park and hotel with your wristband; you never need to take it off. It is a new payment model based on profiles and actual use. Disney can also add new functionality, for instance to stimulate healthy behaviour. For example, anyone who walks a certain distance through the park might get a discount on a hamburger.¶

This creates a world full of rules that you need to discover. With these wearables, we scan our environment and essentially map ourselves. All the data that we collect about ourselves can be accessed through our personal API (Application Programming Interface), so that just like with modern software, your data can be shared for use in other applications. It is the next step in the quantified self trend; more and more people are collecting data to gain insight into their own behaviour, but also for using other services. You only expose the information that is important to the service you need at that very moment. Sharing your entire profile by default, like Facebook does, is actually already obsolete. By only sharing what is necessary for a single function at a single moment, you will get back exactly what you wanted to know. This is the data dialogue that we are continuously having.¶

The interactions that we have with wearables are different and richer than more 'traditional' touch points. They are no longer screens full

of information, but short messages, notifications. They can also be presented in ways other than visually. For example, tactile interfaces will continue to become more important – vibrating as the basis for transmitting information. Research shows that vibrating is already suitable for a variety of different messages. It is a completely new dimension for designers.¶

With the breakthrough of wearables, the digital layer over our world is no longer the provider of additional information about our reality. That layer has become our reality. Our physical actions will become data-generating activities. It is the Solid Internet: Everything around us is digital, from watching television and driving a car to reading books. In this digital world we will record physical elements to gain more knowledge about our activities. Wearables are the first form of this.¶
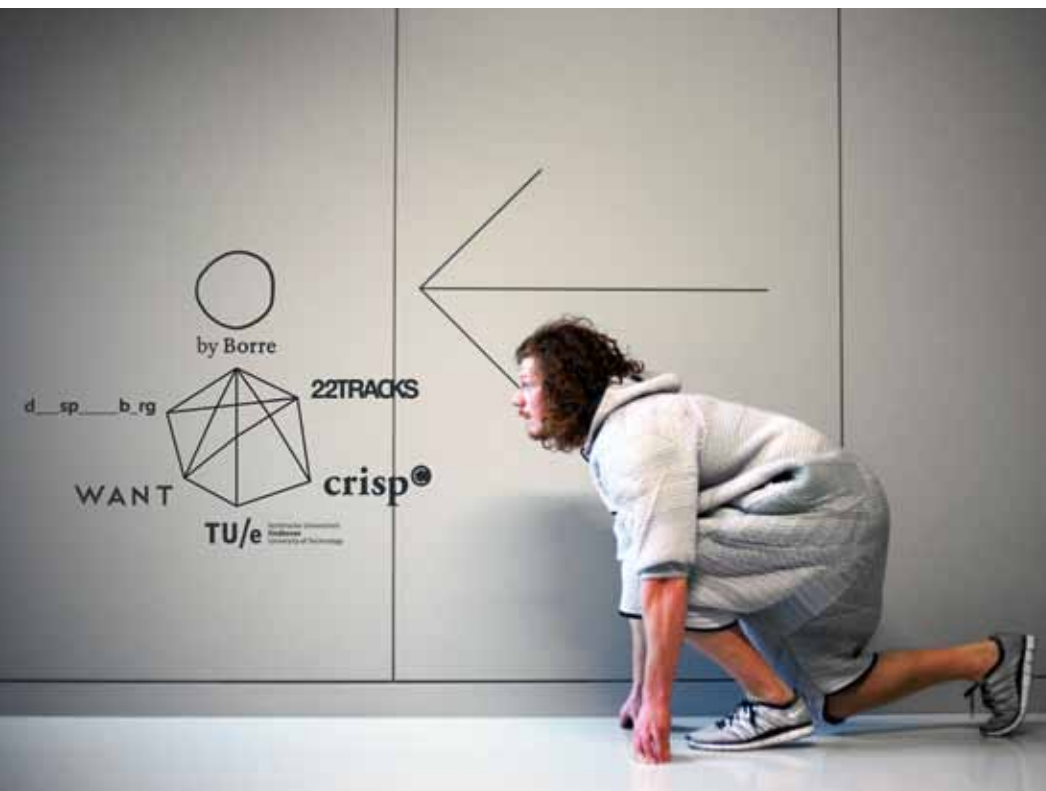
Transcending disciplines

So wearables connect worlds that were previously unconnected. Our connectivity through ICT will become mixed with the values of fashion. At the same time, new hybrids will arise in materials. In the Netherlands, we are already seeing interesting examples of this. The fashion industry is doing research into the influence of new tech-

ByBorre's BB.Suit. A 3D-knitted onesie with Wifi, GPS, NFC, Bluetooth and a music library, made in a disciplinary crossover.

nology on materials and shape: Daan Roosegaarde is studying the role of clothing, with Pauline van Dongen providing the practical insight. Designers are posing more fundamental questions about what personal media means for materials (ByBorre) and design (Iris van Herpen). It is often what James Bridle once called the New Aesthetic, meaning the influence of digital values on form. Research into clothing-based interaction, like the Beyond Glass project from the HvA's Digital Life Lab, is related to this. For this project, a fabric is being developed that transmits remote touch over the internet. A touch on my sleeve is felt by the related sleeve of someone else, somewhere else in the world. It is an open model whereby wearables also become software at the material level, adaptive and malleable.¶

The spatial designer is also searching for a new role. Mobile City's research on the hackable metropolis is looking at how a city can be adapted to the needs of its inhabitants using technology. It gets even more interesting when the personal cloud is used for new interactions – the designer and users can get in touch with each other directly through the cloud to design the city together.

Breaking through the solo mentality of various disciplines is essential; specialists in the digital design and fashion worlds will need to work together. On this new playing field, which is independent of individual disciplines, the user's current situation will be the determining factor for the form of the design. It will fully utilize the interaction principles of the second skin, resulting in wearables that are derived from people in their environment.¶

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ADAPTABLE HOUSES IN HET DORP

More than a nice place to live

In order to understand what the residents in *Het Dorp* (The Village) needed, Eric Vredenburgh went to live there a few days himself. The architect rolled around in a wheelchair and was hoisted from bed to bath. His experience resulted in two special 'adaptable' houses that provide a glimpse of the future.¶

"If you experience firsthand what it is like to have a disability, you gain new insights," says Eric Vreedenburgh. Within just one year, his agency Archipelontwerpers, home automation designers, caregivers from client Siza, a group of active residents and an unorthodox construction manager created two innovative pilot houses at Het Dorp in Arnhem, a residential facility for people with disabilities. "If we had approached this in the traditional way, it never would have worked."¶

The assignment was to make a house where disabled people could live as independently as possible. He added the word 'pleasant' himself: "As far as I'm concerned, it can also be more enjoyable." And it became much more than that. The houses are energy neutral, spacious, light, flexible and packed with innovative home automation features. And all within the standard construction costs. Literally everything is controlled with a tablet, from opening the front door to closing the curtains. Those who are unable to control a tablet with their hands can use eye movements instead. According to Vreedenburgh, "The starting point for the design was that the house needed to adapt to the resident, and not the other way around. I approached it from the point of view of the resident, who wants to easily move around the house, have a good view of their surroundings and look at the lovely folded ceiling from their bed."¶

The residents of Het Dorp are now testing out the apartments in advance of applying these concepts to the entire village. It is already obvious that they are very proud of the results: "They don't look like care homes. We often hear from people without disabilities that they would like to live here as well."¶

www.archipelontwerpers.nl | www.siza.nl/HetDorp

Photos: Ronald Tilleman

WATERWAY APP

Finding your way on the water

Waternet and TamTam have launched the first app with a navigation system for Amsterdam's waterways. It is packed with practical information for having a good time on the increasingly crowded canals.¶

Honking sightseeing boats, rented party boats and quiet electric boats are joined by thousands of privately-owned boats in all shapes and sizes as soon as the sun shines. With this ever-increasing traffic, water management agency Waternet has plenty to tell Amsterdam's boaters, including about boating rules, obstructions, locks, bridges and 'traffic jams'. Because the better the boating traffic is spread out, the nicer it is on the canals.¶

Waternet approached TamTam for an app that could provide the city's 15,000 boat owners plus an additional few thousand renters per year with practical information. "We started by investigating the needs of the user," says creative director Danijel Bonacic. "The biggest challenge was to make an app that people actually wanted to download." A navigation system, a digital speedometer and the local weather forecast proved to be the most-wanted features. The location of jetties, petrol stations and nice cafés came in second place.¶

The practical was combined with the enjoyable – from real-time traffic information, to a culinary sailing route with restaurants where you can moor your boat. It also included a navigation system – the first for Amsterdam's waterways. The end result is a free app that is useful for both Waternet and for users. Waternet can now see where there is a need for regulating traffic, cleaning or operating bridges. And the 40,000 downloads prove that their clients are very interested as well. Bonacic expects there will be more: "We're looking at additional functionality we can add to the app. For example, if your boat is in danger of sinking during the winter, you could receive a push notification to warn you. That would work much better than the letter that is now stuck to your boat."¶

www.tamtam.nl | www.waternet.nl

TAM⁄TAM ✕ water◯net

DESIGN FOR THE CIRCULAR ECONOMY

Adding value to the end

Can a product, just like a cat, have nine lives? At the Delft University of Technology, research is being conducted on value creation in a circular economy, and the focus lies on reuse. Products that last longer require a new way of thinking and acting. Whoever masters that can reap the economic rewards and do something good for the planet at the same time.¶

Conny Bakker

When I was studying for my industrial design degree, already quite some years ago, I learned the useful list 'create – distribute – use – disappear' as a tool for developing new products. 'Create' relates to the very first, often messy and creative phase of product development during which new ideas are conceived (also called the 'fuzzy front end'), as well as the production of a viable concept. The 'distribution' of a product includes the actual distribution, plus marketing and sales. 'Use' of course relates to the achievement of safe, ergonomic products, but also the development of sophisticated user experiences. And then there is 'disappearance'. We interpret that as carte blanche to avoid thinking about the end of a product's life. Out of sight, out of mind.¶

But the time when products could blamelessly disappear is long gone. We all know the harrowing images of toxic mountains of trash in Africa and plastic rubbish polluting the oceans. That is why my current work at the Delft University of Technology focuses on what I call the 'fuzzy back end': the creative phase that creates value by enabling products, components and materials to last longer, for example through reuse, repair, reprocessing (remanufacturing) and recycling. This will eventually cause our consumption of materials – and the mountain of rubbish – to decrease.¶

Value and time

The fuzzy back end is nicely captured in the ideas behind the circular economy. At a basic level, the circular economy consists of two comprehensive cycles: a biological cycle, where materials and substances return to nature and safely decompose, and a technical cycle, where products, parts and materials are specifically designed and put on the market so that they can be reused at a qualitatively high level. This preserves the economic value.¶

Product and material streams play an important role in the circular economy, but if we go one level deeper, we see that the circular economy is mainly about value and time. Value drives transactions. The circular economy is about new ways of creating value, whereby companies earn money over the entire lifespan of a product (and beyond), or people create value, for example by repairing each other's broken products in a repair café. Time is an important factor because the circular economy only delivers material savings over the long term if we allow products (and materials) to last longer.¶

Business models

In our research at the University of Delft, we have looked at different ways that companies can create value in a circular economy. We identified five archetypal business models. In the subsequent models,

Eastpak believes in the Classic long-life model, Nespresso's recyclable capsules fit a Hybrid model and Rolls-Royce sells power by the hour in a Performance model. © Eastpak / © Nespresso / © Rolls-Royce plc

the focus increasingly shifts from product to service. That has consequences for the consumer (or better yet, the user) and the designer.¶

1 Classic long-life model

In this model, companies generate their primary income from the sales of high-quality, durable products that last a long time. Brand image is immensely important to this, as is the warranty and service that the company offers. Consumers are often put off by the high purchase price, and must therefore trust the brand implicitly. Eastpack, for example, created an ad campaign that showed a skeleton wearing an Eastpack with the message: Eastpak backpacks. Guaranteed for life. Maybe longer. The Classic long-life model is attractive for designers – for example, think about how satisfying it must be to put your name on a design classic. But the disadvantage of this classic sales model is that the company only has contact with the consumer when something goes wrong with the product, and little attention is paid to recycling because the main focus lies on a longer life span.¶

2 Hybrid model

In this model, a durable product is combined with a short-lived consumer good that can be reused and/or recycled. The company generates its primary income from the sales of the consumer good – for example, think of Nespresso and its coffee capsules. Empty capsules can be returned to Nespresso Stores to be recycled. Miele has recently introduced a washing machine that uses detergent reservoirs that automatically dispense the correct amount of laundry detergent. The reservoirs, good for 37 loads of laundry, are only available from Miele. This increases Miele's ability to earn revenue throughout the entire lifespan of its washing machines. To my knowledge, there are no plans to refill or recycle the empty reservoirs – that would bring Miele one step closer to a circular business strategy.¶

3 Gap Exploiter model

Gap Exploiters are the pioneers of the circular economy. A Gap Exploiter makes smart use of the value that is still present in broken or discarded products and components. Their primary income is derived from the sales of refurbished products and parts, and from delivering services for repairing products. Companies such as iFixit, iCracked and Leapp offer affordable repairs and refurbished Apple products. Arrow Value Recovery fixes up old servers and desktop computers to resell them at a reduced rate. Even the cobbler on the corner is a Gap Exploiter.¶

4 Access model

In this model the consumer does not own the product, but gets access to that product (and the related service). Bundles is a start-up company that offers 'laundry bundles': a certain number of loads of laundry per month with a Miele washing machine, which is installed at home by the company. The washing machine remains property of Bundles; the user gets access to the machine and pays a monthly fee, depending on how often they do laundry. Airbnb and car-sharing companies also fall under the Access model, just like Bag Borrow or Steal, a company that rents designer handbags. In this model, getting access to and using the product or service is central. The primary revenues for the company come from paying for access.¶

5 Performance model

Here, the product plays a lesser role. Everything revolves around the (quality of the) provided service. Rolls-Royce offers 'power by the hour' instead of aircraft engines. A launderette offers 'pay per wash' instead of a washing machine, and Philips offers a 'pay per lux' service contract instead of LED light bulbs. The product itself (the

The office of RAU architects is lighted by Philips on a 'pay per lux' basis. © Koninklijke Philips Electronics

washing machine, aircraft engine or LED light bulb) is robust, durable and easy to maintain, because it is of direct importance to the company, which earns more the longer the product lasts. Companies like Uber that offer 'pay per ride' in an innovative way and Re:Able that offers office furnishings by the square metre also fall under the Performance model.¶

Experimenting
Undoubtedly, this overview of new business models is not exhaustive, but I hope that I have made it clear that there are a wide range of possibilities for putting the transition to a circular economy in motion. It offers new opportunities for companies and designers, especially if they work together to explore the possibilities. They can take inspiration from the social innovations that are already taking place; the first signs of change are all around us. They are taking shape in an informal way in repair cafés, virtual and physical swap shops (such as ikringloop and sawpit), the sharing, trading or renting of car rides (snappcar), clothes (kringdekleertjes), apartments (couchsurfing), goods (peerby), or Wi-Fi (crowdroaming), and so on.¶
Finding out what works the best is often simply a matter of trying. Some products are ideal for experimenting with (for example) renting. Renting has already been done with mobile phones and jeans. Designers can assist companies by developing pilots – for example, branding and communications related to a rental pilot. But because we are very attached to owning products, the transition from owner-

ship to usage will not be a smooth one. It helps to make the offer as attractive as possible to the consumer. This is the challenge to designers: They have the tools (words and images) to guide the transition and entice people with new forms of ownership.¶

Reversal in thinking
Participating in the circular economy requires a reversal in thinking. By immediately thinking about the fuzzy back end when designing a new product, the product can have multiple lives. Money can be earned by letting products, parts and materials last longer. It requires close cooperation between creatives, marketeers and technologists to discover where the most profit can be achieved. Can a product, just like a cat, have nine lives? And in such a way that their seventh, eighth and ninth lives are great as well? Or does it already stop after three lives?¶
The key question that designers and companies can ask themselves in the near future is this: What kind of new value propositions are hidden behind the first life of a product? I am looking forward to the answers that they find.¶

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This publication is the third in a series about how designers can contribute to solutions for issues in other sectors. The included examples were selected primarily due to their far-reaching effects. This initiative is part of a broader movement working to extend the influence of the creative industries to other sectors. In addition to this book, meetings are organized to stimulate discussion between designers and producers, clients and researchers from other industries. These activities are supported by the parties listed below.

CLICKNL CLICKNL is the knowledge and innovation network of the creative industries in the Netherlands. CLICKNL includes the following sectors: Design, Media & ICT, Next Fashion, Games, Built Environment and Cultural Heritage. *www.clicknl.nl*

Dutch Creative Council This is the independent strategic advisory board developed for and by the creative industries, with the aim of stimulating and developing it into a leading industry sector. *www.creativecouncil.nl*
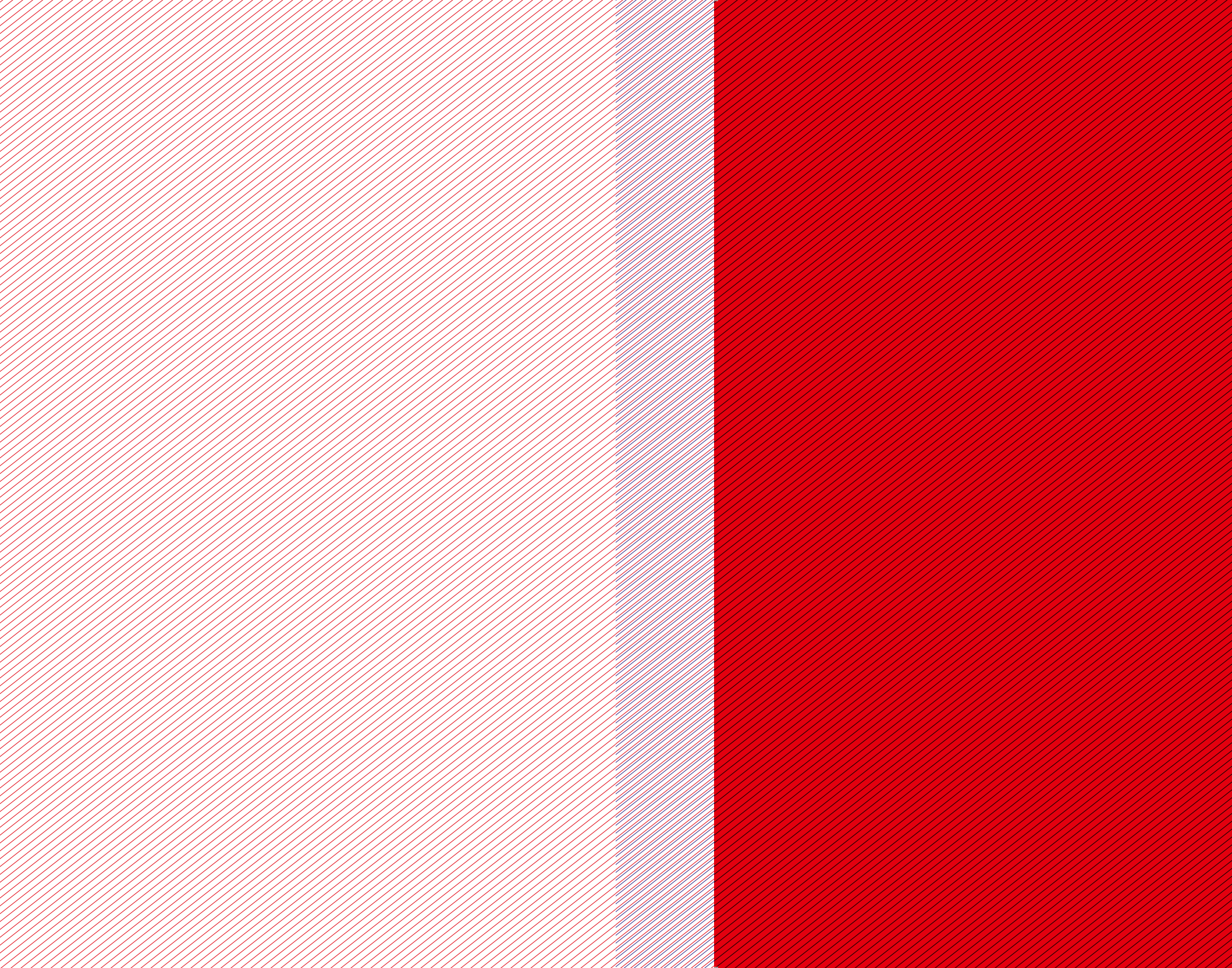
Federation Dutch Creative Industries The Federation connects eight trade and professional organisations from the commercial creative service industries: the Royal Institute of Dutch Architects (BNA), Dutch Association of Interior Architects (BNI), the Association of Dutch Designers (BNO), Dutch Games Association, Fotografen-Federatie/DuPho, Modint, Dutch Digital Agencies and VEA, the association of communications agencies. *www.dutchcreativeindustries.com*

Chamber of Commerce The Chamber of Commerce and Syntens Innovation Centre joined forces in 2014 to assist entrepreneurs with making a successful start, product and service innovation, and achieving their ambitions for growth. *www.kvk.nl*

Creative Industries Fund NL The Creative Industries Fund provides project subsidies to strengthen the quality of content within the creative industries, promote innovation and cross-sector collaboration, and to professionalise entrepreneurship, both locally and internationally. *www.stimuleringsfonds.nl*

Designers are masters of unconventional thinking or providing a healthy dose of scepticism. It can sometimes make them difficult, but also especially resourceful. And those characteristics prove useful when tackling social and economic issues. Part three of this series includes many new examples of exceptional products that help move our society forward, from games and toilets that save lives to jeans that clean up the ocean. Look, browse, read and get inspired!¶