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WORKS  
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#2

INNOVATING WITH THE CREATIVE INDUSTRY

Who dares to shake up systems that have got stuck in a rut, introduce radical change, and experiment with the impossible? The designers, inventors, artists and their principals in this booklet leave their own comfort zone, force their ideas to take a new direction, and come up with unusual answers to today's questions. *Crossover Works #2* presents a new selection of results in innovative products and services. 

**CROSSOVER  
WORKS #2  
INNOVATING  
WITH THE CREATIVE  
INDUSTRY**

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Jeroen van Erp

## Extraordinary lever effects

It is difficult to imagine, but there was hardly any mention of the creative industry as a sector three years ago. Luckily that has changed under the influence of a globally growing awareness of its strength. The decision of the Ministry of Economic Affairs to designate the creative industry as a top sector confirms and reinforces that strength. And we have a right to be proud of that.¶

One of the intentions of the top sector policy is to create lever effects through crossovers between the different sectors. Certainly, a part of the creative industry operates autonomously. Creative minds devise products or services, varying from interior products to fashion, and put them on the market. This is similar to how it works in other sectors: Shell sells petrol and Friesland Campina dairy products. But the vast majority of the creative industry works above all for other sectors and not for the final users. While crossovers are still regarded as an unconventional challenge in many other sectors, they are the rule rather than the exception in the creative industry. The government often refers to the golden triangle: government – science – creative sector. But in this model it is more logical to refer to a tetrahedron, in which companies and social institutions are the fourth player that makes the figure complete.¶

Crossovers are actually so natural for the creative industry that we forget to explain and illustrate the fact. Hence Crossover Works #2, for which we have sought the new best practices which have been implemented – with extraordinary effect. The Fairphone is a fearless game changer among the smartphones. A designer has found a multifunctional solution for flooding in cities. And if you hear voices inside your head, the Temstem app sometimes seems to be more effective than relatively expensive therapies. It is striking to see how a combination of unconventional thinking, professional knowledge and a sense of responsibility plays a crucial role in devising solutions of this kind. This is where the creative industry increasingly manages to stand out. And that is something to be proud of too.¶

Jeroen van Erp  
*Creative Industry Topteam*

# CASE 01

## FAIRPHONE

### Flying start for a fair phone

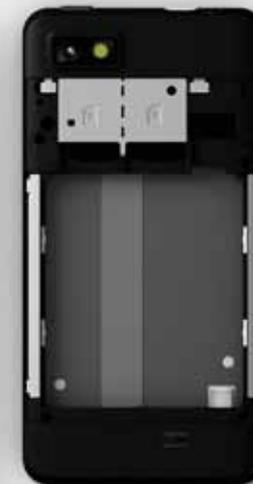
Who wouldn't like to help to make the world a better place without having to cut down on luxury? At least 25,000 people were so taken by the idea that they even paid for their Fairphone before it was taken into production.

5,000 orders were needed for the factory to start up production, but there turned out to be no less than five times as many enthusiastic supporters. 'There is apparently an enormous demand for innovation in the process', says Fairphone's Roos van de Weerd. This brand-new Amsterdam company claims that from beginning to end the life cycle of a mobile telephone can be made fairer and more sustainable and it decided follow a different course from the rest.

The idea of making consumers more aware of the often less attractive story behind their electronics originated in the Waag Society. The designer and technical wizard Bas van Abel encapsulated that idea in a smartphone that is better for people and the environment. The required components are collected assembled, and, if possible, recycled again under the fairest possible conditions. Van de Weerd: 'The project is about reorganising systems that have got stuck in a rut. It can't be done in one go. Buyers invest in a process leading to a fairer phone. We can now guarantee, for example, that the tin and tantalum come from Congolese mines that have no connection with the armed militias. The next step is the gold. And in China we have found a factory that it amendable to improving the working conditions'.

The plastic case is recycled and the Fairphone can even be repaired thanks to the use of components that can be dismantled. 'We have to leave those hermetically sealed black boxes behind', says Van de Weerd. 'That is design for the dump. It costs no more to make something that is more sustainable and social. And we invest the profit in the next step; the Fairphone gets fairer and fairer'.

[www.fairphone.com](http://www.fairphone.com)



## Crossing the border automatically

Where there used to be an intimidating high desk behind which a customs officer looked down and asked for your passport, there is now a user-friendly DIY gate. The Ministry of Security and Justice brought in the Fabrique design agency to develop it.¶

The number of visitors to Schiphol airport is expected to grow to 20 million by 2020. How do you cope with that enormous flow as efficiently, safely and pleasantly as possible? How do you avoid long queues, while there is no space for more metres or staff? There is no alternative, says former project leader Kier-co Gerritsen from the ministry, Schiphol will have to automate even further. The customs officers have already accepted the change: since 2012 the checking of passports is done automatically via e-gates at many points. 'It's not a new idea', says Gerritsen, 'but we wanted to do it differently from elsewhere'.¶ That is why they brought in the Fabrique design agency. 'In other airports those gates scare people off rather than welcoming them. Schiphol attaches great importance to the welcoming aspect. We wanted to make our gates more attractive and their use more intuitive so that everyone understands right away. Fabrique are experts in thinking from the user's point of view, they know how to influence behaviour and to convert that into a product'. A number of conditions were jointly defined to make the e-gates as low-threshold as possible. Screen instructions, camera scan, passport control and opening and shutting gates must proceed in a single logical process. And an important extra factor: it must look good enough to enter.¶ Gerritsen describes the result, a joint product with Accenture and Vision-Box, as 'An elegant, contemporary design that does not provide any redundant or distracting information. But it is more than a well-functioning border gateway. It also means a change of mentality for the border officers from checking to providing a service, and that is in line with the development that Schiphol wants to see'.¶

[www.fabrique.nl](http://www.fabrique.nl)



## Water square arouses international interest

The first large-scale water square has opened in Rotterdam. It is designed to fill up during heavy rains. The neighbourhood is pleased with this ground-level solution for the flooding and it has considerably enhanced the square.¶

You can skate, play football or just sit down here and enjoy the sun when the weather is fine. After a downpour the sunken areas are converted into pools into which the rainwater from the neighbourhood drains. The Benthemplein in Rotterdam is the first large-scale water square in the world. Two designers came up with the idea during the 2005 architecture biennial and it fitted in perfectly with the local authority water plan.¶ The problem: heavy downpours are increasingly common and the drains cannot cope. ‘The solution is actually very simple’, says Florian Boer from De Urbanisten, who devised the concept and turned it into a design in consultation with the local authority and residents. ‘You can solve that problem of capacity underground with larger drains, but why not do it at ground level and turn it into something positive? The water square does three things at the same time: it relieves the drains, it helps to keep up the level of the groundwater, and it improves the public space’.¶

In the past the water used to run from the roofs around the square through drainpipes into the drains. Now it is led directly to the square. There are two shallow pools that fill up first. When they are full, it is conducted to the largest pool where the sports field is located. Afterwards it is used to top up the groundwater or drained into the canal. There is a lot of international interest in the idea – after all, climate change is global: ‘Cities in China, Denmark, Brazil and the us have shown an interest. But we are still busy in the Netherlands, there will shortly be one in Tiel’.¶

[www.rotterdamclimateinitiative.nl](http://www.rotterdamclimateinitiative.nl)  
[www.urbanisten.nl](http://www.urbanisten.nl)



Benthemplein, Rotterdam (photograph: Ossip van Duivebode)

# CASE 04

## INTO D'MENTIA

### Lost in your own kitchen

There's a note on the kitchen table telling you what to do with the shopping... but where has the fridge gone? Into D'ementia lets you feel what it is like to suffer from dementia. It helps a lot of people to care for a relative longer.¶

Unfortunately, a growing number of people are in need of voluntary care. As we age in larger numbers, dementia is becoming an increasing social problem. Care and nursing homes are full and spending cuts are affecting health care, so caring for the demented will increasingly come to depend on the voluntary support of relatives, friends and neighbours.¶

Minase Consultancy joined forces with Tilburg University, the vu University Medical Centre Amsterdam, a number of senior care institutions and the interactive media agency Ijsfontein to find a way of alleviating that heavy burden. 'It starts by feeling for yourself what it is like to be demented', says Raimond Reijmers, creative project leader at Ijsfontein. 'If you can put yourself in somebody else's place better, you can take better care of him or her, you can keep it up for longer, and thus enable people to stay in their own homes longer.'¶

Scientists, medical staff, care professionals and creative thinkers are cooperating intensively on research on the problems that patient and carer encounter and on how to get them across. This has led to a travelling simulator that is used to train volunteer workers and professionals in health care training institutes and other institutions. But this time the tables are turned: you are the one who is demented, while the carer is your virtual opponent. 'It is confronting and illuminating', says Reijmers. 'Feeling for yourself how confusing, frustrating and lonely it is proves to work: in the follow-up discussion 95 per cent of the participants say they have gained new insights and intend to tackle the problems differently'.¶

[www.intodementia.nl](http://www.intodementia.nl)  
[www.ijsfontein.nl](http://www.ijsfontein.nl)



## App keeps voices under control

Temstem is an app for people who hear voices in their head. At times of stress a game on the iPhone can prevent a lot of suffering. The care sector is enthusiastic: the free app seems to be a good alternative to expensive therapeutic sessions.

It started with an assignment in an Industrial Design course by Nynke Tromp, who teaches at the Delft University of Technology: how can a designer help someone to recover from a psychosis? The psychomedical centre Parnassia drew inspiration from the ideas of students and invited Reframing Studio, the design agency where Tromp also works, to join in. Psychotherapists, researchers, designers and potential users worked together on an app – Temstem – for people who hear voices in their head. At awkward moments two games distract the player from the disturbing voices. For instance, by typing the syllables of a series of words with one finger: the higher the number of correct ticks, the higher the score. ‘The eureka moment came when we discovered that that typing is just the right thing to keep your brain on the rails without being too difficult’, says Tromp. ‘It is a question of activating the area where language is produced in the same way, then the voices do not have a chance’.

The main challenge is to find the right balance between aid and game: it must be attractive enough to make you want to play it, but simple enough if you panic.

The higher the level selected, the greater the therapeutic effect. In the meantime the player receives positive feedback: Temstem strengthens precisely what the voices want to weaken. The crossover between design and health care proved to be fertile. After a successful test period – one player even lost the voices completely – the app is now available free of charge for iPhone users and work is going ahead on an Android variant.

[www.reframingstudio.com](http://www.reframingstudio.com)  
[www.parnassiagroep.nl](http://www.parnassiagroep.nl)



## DYNAMIC BOARDING INFORMATION

## Know where to board

The aim was to improve service to rail passengers. The LED strip that Edenspiekermann and STBY designed makes it easy to see where to board. An interesting spin-off for ProRail and Dutch Rail: reduced boarding times enable them to run more trains.¶

Everyone has experienced it. Racing upstairs onto the platform, wondering whether the train arriving is the right one, hurrying over the crowded platform to the nearest door, and finding yourself in the busiest carriage of the whole train. That is a thing of the past with the dynamic boarding information of Edenspiekermann and STBY. A long LED strip above the rails indicates exactly where the train stops, where the doors are located, where the first and second class carriages are located, how full the carriages are, and where you can board with a wheelchair or bicycle.¶

Initially ProRail asked the firms to investigate the problems caused by the renovation work at Utrecht Central Station, but once they had started the designers discovered a more urgent problem: the greatest inconvenience to passengers is the lack of information on the platform about the train that is arriving. The assignment was modified: boarding and alighting had to be made safer, faster and more comfortable. The resulting product is only a small part of the whole, says Joost Holthuis from Edenspiekermann. 'A lot of time has gone into the cooperation between ProRail, Dutch Rail and the rail passenger. The exchange of information between these parties was crucial for the success of the project. For instance, Dutch Rail turned out to be already working on a pilot to count the passengers in each carriage using infrared sensors. We were able to make good use of that information'.¶

The LED strip was tried out for three months in 2013 in Den Bosch. Holthuis: 'The reactions were very positive. The platform is less chaotic, passengers are distributed better in the train, and the process has been speeded up. It would be fantastic if this becomes normal practice in a year or so'.¶

[www.edenspiekermann.com](http://www.edenspiekermann.com)

[www.stby.eu](http://www.stby.eu)



## ENERGY ISLAND

## Storing sustainable energy at sea

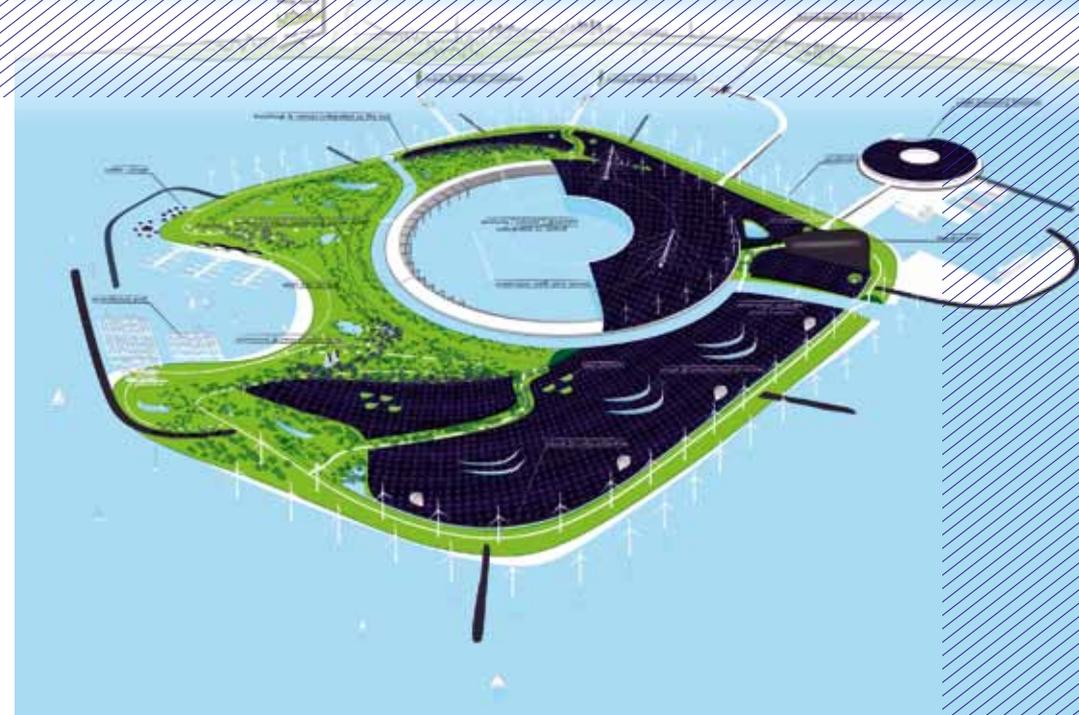
Whether you regard it as cluttering the horizon or not, sustainable energy is the future. But it can certainly be a bit more attractive, says Jeroen Verbrugge from FLEX/theINNOVATION-LAB. This design agency is working with the energy sector on an unusual energy island.¶

It is difficult to store wind and solar energy, so the current is sold at rock-bottom prices during peaks and we have to fall back on fossil fuels during low periods. That will soon be a problem in the Netherlands, and is already a serious one in countries like Germany and Denmark. The energy island offers a solution: an offshore island with a sort of marine pit in the middle. When the windmills in, for example, Germany produce more energy than required, it can be stored in the 'pit' by pumping water from it into the sea. When there is a demand for energy, the salt water is pumped back in again. The falling water drives generators that produce current and conduct it to the mainland.¶

The idea was already developed some 30 years ago by the Lievense agency and KEMA, but was not taken up because the need at the time was not great enough. Flex design agency and a number of other parties recently revived the idea. 'It may not seem obvious what role the creative sector can play in a project of this kind', says designer Jeroen Verbrugge, 'but we have enriched the plan by letting more imagination loose. We have been able to inspire others and thus broadened the basis of support for the concept'.¶

Flex devised an attractive entourage for the island, for why not combine this innovative technology with an extraordinary recreational area? A green island with a beautiful jetty where you can spend the night in a dune cottage and see how green energy is produced and stored. 'A sort of mini-Ameland, focused on sustainable energy', says Verbrugge, who has cooperated with Energy Valley, Ballast Nedam and Royal Haskoning on this project. 'We are now looking seriously into the possibility of jointly implementing it'.¶

[www.flex.nl](http://www.flex.nl)



**The Energy Island is an artificial island suitable for shallow waters. It includes a 'pit' for energy storage, the generation of wind and solar energy, and various recreational functions. (Visualisation: FLEX/theINNOVATIONLAB)**

## Spiderman is not fiction any more

Spiders are ingenious web builders and they use a unique material for the job – stronger than steel, more elastic than nylon, and a better conductor than copper. Artist Jalila Essäidi discovered new applications.¶

The thread spun by the tropical Golden-Silk Orb Weaver proves to possess ultimate properties. If you introduce the genes of that spider into goats, they produce synthetic silk in their milk from which an extremely strong material can be made. And that could be a raw material for bullet-proof vests. Artist Jalila Essäidi read a scientific article about it and let her imagination run a step further. If spider silk is worn by a living body, you can also make it a part of that body. With the assistance of scientists and medical experts she managed to do just that: she developed a piece of bullet-proof skin.¶

‘I’m used to thinking beyond my own field’, says Essäidi, who calls herself a hybrid artist. ‘Innovation takes place when you look at something from different angles. I want Bulletproof Skin to show that more is possible than you realise and to provoke discussion of how far we are prepared to go to feel safe’. But there are also practical medical applications: spider thread proves to be a good medium on which to grow new skin, for instance in treating serious burns.¶

Essäidi did not stop at making her discovery. She set up BioArt Laboratories and is curator of the Biobased Wunderkammer, where artists can experiment with biobased materials. And she now has her own company: Inspidere®. ‘I have discovered a new material that is biodegradable, very strong, and can be applied in all kinds of ways, not only in the medical world, but also in commercial products such as clothing and shoes. I want to launch my first project in 2014, but what it will be remains a secret for the time being’.¶

[www.jalilaessaidi.com](http://www.jalilaessaidi.com)



**Captivated**

Empathic design: for me it's a blank, but at times when a designer is manifested as yet another jack-of-all-trades it's good to specify your jargon. Giving it a name is one thing, the next step is actually doing it. So when I wanted to design for the prison service, I made sure that I got locked up myself. ¶

*Chris Gruijters*

Design is irrevocably empathic, but how often do we find that no proper thought has been given to certain physical or mental things? In the eyes of an empathic designer that form of not thinking things through is the incapacity that comes from not understanding. And that is where empathic designers try to make a difference by allowing themselves an extra step in the design process to get closer to the experiences and habitat of their target group. The aim is to design in a way that feels honest and just, with a result that is appreciated above all by the final users. And if they do not even get the feeling that it has been designed at all, so much the better. ¶

**Learning to empathise**

During my training in Industrial Design I soon noticed that a user test on Friday afternoon with a few student friends who had been collected at random was not a user test. And just as I was so proud that my interactive light installation hung safely, so I was disappointed when the kids simply walked past it, not in the slightest realising that they were influencing it. I increasingly came to realise that if I spent an extra week or two (or three or four or five) during the initial stage of the design on getting to know and understand my context, there would be little need to revise my concepts afterwards. ¶

Theory never helped me at all. The papers that I found on empathic design explained in so many words that I had to empathise with my target group and suggested blindfolding yourself if you are designing for the blind. But thanks to my search for theory I did come across a real role model: Patricia Moore. She was a designer who dressed as an old woman in the 1970s, including something to give her a crooked back, glasses with thick lenses and cotton wool in her ears. 26 years old at the time, for three years she travelled and experienced what the world of the elderly is like. At a time when an old woman was blamed if she couldn't open the door, Patricia pointed to the door with her finger. ¶

**Ultimate scenario**

So I'm a designer who likes to plunge into unusual contexts, ones which make me wonder whether designers are involved in them at all – phenomena that we human beings have created, maintain and have an opinion about, but we don't really understand at all. ¶

That's how I became attracted to the phenomenon of the prison. Besides the few people who know what it entails, National Geographic and Discovery go some way to helping the imagination of the rest. Of course, sitting in your Dutch cell and seeing a 1 × 2 meter Russian cell flash by on your TV screen, for which you pay the current and digitenna yourself makes your Playstation seem like an incredible luxury. I had a stereotype US prison in mind myself, in which the inmates do nothing but

fitness, wondering why nobody has yet thought up a way of making use of the energy that is generated in the process.¶

So when I decided for my graduation project to apply my approach to design in the context of a prison, having myself locked up was the ultimate scenario. After putting out a whole lot of feelers and bright e-mails, I was given my first chance to enter the closed world of the prison and to have my say. Armed with role model Patricia Moore and the necessary examples to show the potential of my design approach, I sat down at the table of the Vught Penitentiary (PI) with an inspired and candid prison director. I was onto something!¶

For out of the three proposed levels of cooperation – inspiration, in-depth and ultimate – you already start to grin at level one, above all when ultimate means that the young designer who has just joined you at the table wants to experience prison life for himself in as pure a form as possible, the real thing. After all, you don't order the small serving of popcorn in the cinema.¶

### Chris Noname

'Can't we go for in-depth', the boss's boss said. But the same day I heard that I would be locked up for a considerable time inside before the questions would arise. So unshaven and as free of preconceptions as possible I stepped into the adventure: the van that took me to the PI Vught as an inmate, as Chris Noname. Fifteen days and many experiences later I was outside again on the pavement, with my belongings in a bin-liner and an even longer beard.¶

After a week enjoying Coca Cola, the lock on the toilet door and the company of my girlfriend, I went back inside, this time to follow the guards in a different wing. Because in a context with so many shared interests you have to get to know them all. I became a mixture of part inmate, part guard, and (after a period of distancing) once again that more familiar part designer.¶

I wrote an ethnography about my experiences, gave them to an inmate with a thick felt pen and asked him to read it as critically as possible. I was starting to understand life inside and to form my opinion. I was given the right to have my say, and since I speak through designing, I graduated with three finished products which I knew were right. That was the reward, not the time spent inside, which felt natural to me.¶

### Fucking joint

I now had an answer to the question I had raised earlier of whether any designers were involved with prisons: no. Someone who has been working there for twenty years and bumps into something decides that a panel is needed, goes to the handyman and orders twenty-four. There

may be something romantic about it, but it is above all set in its ways. Relevant as a designer here to sell popcorn and crucial that a director then dares to order the biggest.¶

The doorknob proves that this crossover between design and prison life really works. During my time inside I had a love-hate relation with that thing. You couldn't see whether the door was locked or not. It turned out to be locked when I wanted to go out of my cell because of some noise in the corridor. And I was left stuck behind an unlocked door because I was sleeping when it was unlocked. Or the door was suddenly opened while I was on the toilet.¶

These were all irritations that I just categorised as 'this is a punishment' until I heard the phrase 'fucking joint' during my rounds with the guards. I soon realised that the guards were just as pissed off at having to open and close every cell door ten times a day. A high tech LED flickers at a frequency that holds them up rather than informing them and it is easy to make a mistake with so many doors and things to do.¶

### Inmate, guard and designer

For all these reasons the doorknob I designed is located on one side of the door only but can be moved to the other side by pushing it. This makes it easy for the guards to see which doors are closed and to remove the doubts of the inmates. Besides, it changes the meaning of opening and closing. A guard gives the occupant of the cell the doorknob and it is up to him whether he makes use of it or not.¶

Through having been an inmate, guard and designer, I can see the emotional charge of something as trivial as a doorknob. And thanks to design we can unite those perspectives to create an environment in which



Prototype first doorknob made from toilet rolls. This first model was created by Chris Gruijters in collaboration with guards and inmates.

Doorknob open



Doorknob closed



everyone gets what they want. I think that a design like that deserves the epithet 'empathic'.¶

And then I write this essay about it, initially trying to avoid the first person and wondering whether it is written too personally or not. But perhaps that is the very point to be made. Try not just to find out what a third person thinks, but discover how to explain it in the first person.¶



Prototype doorknob

**Chris Gruijters** (1990) graduated with honours in Industrial Design from the Eindhoven University of Technology with a project in which he presented well thought out designs for prison life. By now

he is back inside in his graduation context, *PI Vught*, for the Innovationlab of *DJI* and is consulting staff and inmates to develop a suitable design for a shared cell. [www.todesignfrom.com](http://www.todesignfrom.com)

**Designers anticipate the future**

We often sleepwalk behind technology as it whizzes forward. Design fiction offers an opportunity to be better prepared for what will come. Imaginative experiments in the border area between art and science make the future convincingly tangible.¶

*Koert van Mensvoort*

Does it sometimes happen to you? You wake up in the morning and realise that so much new technology has arrived on the scene again that you seem to have been lying in a coma for three months? Everybody on this planet is affected by technological changes in his or her life. Medical breakthroughs allow us to live longer, biotechnology brings us raspberries in winter, the social media keep us in permanent contact with our ‘friends’. Technology is an enormous source of change in our lives – more than politics, art or religion. Technology keeps giving us new opportunities, but also forces us to reformulate ourselves time and again.¶

**More grip**

Despite the fact that we are completely surrounded – encircled, some would say – by technology, we have few guidelines to determine how new technology is introduced in our lives. Usually at the moment of its introduction we haven’t the faintest idea what the latest innovation will bring us this time. Did you know twenty years ago how internet would change our society? Did you know five years ago how the smartphone would contribute to your digital lifestyle? Do you know today what the consequences are if computers presently become very good at recognising faces, so that everyone in the public space can be automatically identified? Do you know what impact augmented reality and big data will really have on our lives? Let’s be honest: we often sleepwalk behind our technology.¶

What can we do to get a better grip on our technological future? More about that later, first a comparison. Suppose I want to become a pilot. I will have to enter the flight simulator before actually flying a jet fighter or an Airbus full of holidaymakers. A simulator offers a secure environment in which I can practise my role as a pilot. I can learn to take off, lose height and land. I can even test extreme situations that I hope never to experience in reality, such as when three of the four engines fail. I can crash without being killed on the spot. The flight simulator helps me to anticipate my role as a pilot. And even once I have qualified as a pilot, there is always still the air traffic control that constantly monitors the airplanes and guides them along the right routes.¶

**Science & fiction**

And now our society. What do we do as a society to prepare ourselves for our technological future? Wouldn’t it be a good idea if, like the pilot in the flight simulator, we could anticipate possible scenarios beforehand? And if we could have a radar, like the air traffic control, to locate and identify incoming technologies to guide them along the right routes?¶ Good news: this is already happening, at least in part. For instance, scientists are making all kinds of climate models to work out what the earth

would look like if the sea level rose by two metres as a result of climate change. Would the dykes stand firm? Would Amsterdam be flooded? What would it cost, and how does that compare with the cost of raising the dykes? Such calculations are not intended to predict the future; they are made to chart possible scenarios so that we can make adjustments where necessary and prepare ourselves for what will come.¶ Besides the scientific calculations, there are the science fiction film makers and writers who are adept at supplying us with visions of the future. Think of *Star Trek*, *The Matrix*, *Blade Runner* or the books of Arthur C. Clark, Isaac Asimov or Bruce Sterling. While scientific efforts are mainly directed at a select group of experts, the genre of science fiction reaches a large and broad public. This genre is not necessarily based on facts and rational analyses, however, which some scientists see as reason enough to dismiss it as a whole, but that is a mistake. All new technology, after all, starts with an idea, dream or vision in a human brain, and the imagination is an important engine of innovation. Examples? Think of the invention of the communications satellite by Arthur C. Clark, the deep-sea submarine by Jules Verne in *20,000 Leagues Under the Sea*, or more recently the film *Minority Report* (2002) in which Tom Cruise uses a gesture-based interface that has inspired an entire generation of interaction researchers. Film director Steven Spielberg had the interface in *Minority Report* designed in such detail that, although not yet technologically feasible, it demonstrated tangibly just how flowing and intuitive its operation would be. This brings us to a third category of explorations of the future that is located between the scientists and science fiction visionaries: design fiction.¶

### Tangible future

The genre of design fiction is practised by speculative artists, designers and technologists. They design not for the present, but for a possible future. In fact each of them is a kind of inventor of things that are not yet entirely possible. Examples of design fiction are the Bulletproof Skin of Jalila Essaïdi, the Energy Island of FLEX/theINNOVATIONLAB, Human Birdwings by Floris Kaayk, and the Phonebloks by Dave Hakkens.¶ The added value of design fiction as against scientific calculations is that design is by definition material, tangible, and thereby also communicative. Particularly at a time of data overload, in which a gigantic quantity of knowledge is produced that immediately disappears in a sea of information, it is a great advantage if visions of the future can be made convincingly tangible. While scientific explorations are mainly exchanged within a select group of experts, design fiction can not only bring disciplines together around a specific proposal, but also communicate it to a larger public. That is good, because the future affects us all and is too important to be left up to the experts.¶





Like scientific projections, speculative designs need not always be desirable; they function as creative radar for what may lie in the future, good or bad. Like dystopian science fiction – take George Orwell's 1984 – dystopian design fiction can also offer us benchmarks we want to steer well clear of. Another similarity is that design fiction is sometimes, but by no means always, backed up by technology. Within science fiction a distinction is drawn between hard science fiction, based on extrapolations of existing technology, and soft science fiction in which the imagination takes off. In this connection it should be noted that even the most unrealistic soft science fiction can still have a cultural value because it enables us to reflect on life, the world, and our position in it – but as art, not science.¶

#### Exploring boundaries

The greatest strength of design fiction is at the same time its weakness: the speculative designs can be so tangible and convincing that some people will think that the design already exists and is for sale. Unlike the genre of science fiction, which remains tidily within the cover of the book or the edge of the cinema screen, design fiction does not have a clear platform. Particularly in a visual culture of blogs and magazines, in which a flashy demo is often more important than a working prod-

uct, this can lead to confusion. Moreover, the makers of design fiction by no means always adopt a clear position with regard to the technological feasibility of their plans and their intention of really implementing the design or just telling a good story. Today's design fiction may be tomorrow's design fact, but it may just as easily turn out to be design fantasy.¶

In short, as a genre design fiction is still in its infancy. There is no clear platform and its practitioners have diverse methods and motives. All the same, it has potential. It can bring people and disciplines together around specific, tangible visions of the future in the border area between art and science. Such crossovers may not only bring about innovation, but also help us to avoid dystopias and to get a better grip on our future.¶

**Koert van Mensvoort** works in the border area between art, technology and philosophy. He is founder and director of Next Nature Net-

work and a part-time associate of the Eindhoven University of Technology.  
[www.nextnature.net](http://www.nextnature.net)

HEIJMANS

Building company forms  
winning combination

‘I like drawing diagrams that visualise feasibility’, says Martin Schellekens from Heijmans. ‘Designers sketch a special experience. Combine our brainpower and something very good can result.’

If you still want to be a player in a market that is traditionally regarded as no longer viable, you will have to innovate, says Schellekens, Bid Director at Heijmans. ‘The building sector used to distinguish itself by price, but that is no longer where our added value lies. The focus now is on the quality of the services we provide’. That servicing is changing drastically under the influence of the building crisis, government policy and the sector’s own ambitions. Heijmans now profiles itself as an innovative company that supplies not only buildings and roads but also ideas, designs and service. To do so the firm explicitly looks for ways of cooperating with other disciplines and sectors.

An example is the cooperation with designer Daan Roosegaarde, who ventilated his pioneering ideas about luminous asphalt in public and was promptly invited by Heijmans to come and talk about them. In the meantime they are working in co-creation on the Smart Highway of tomorrow. ‘These kinds of experimental projects do not immediately yield returns, but they lead to new discoveries and that makes us distinctive’, says Schellekens. ‘As a result the market sees us as innovative; we are no longer a traditional building company, but one that knows how to bring parties together to create something new’.

**New construction**

We are having our conversation in Soesterberg, where a consortium led by Heijmans is building the new National Military Museum. According to Schellekens, they would never have secured this commission if they had not sat down at the same table as architects, designers, constructional and installation engineers and service companies to develop the concept right from the start. But it goes further than that: the consortium has also signed a DBFMO contract – Design, Build, Finance, Maintain, Operate – for the next 25 years. This is a relatively new form of



National Military Museum (Visualisation: bmd)



contract by which the government places responsibility for a long time in the hands of the market parties and thereby hopes to stimulate the innovative force of the market.¶

The cooperation with members of the creative sector in the consortium is new for Heijmans. Schellekens: 'In the past the government devised the plan and programme of requirements, found an architect to do the drawing, and then a sub-contractor to carry out the work. Now we are leading and invited the architects Claus & Kaan, landscape architects H+N+S and exhibition designers Kossmann.dejong to help us to find a way of securing this job'. The designers were present at every meeting with the client. 'They hear different things from what I hear. They are much more associative, think from the perspective of the visitor, want to bring the collection to life. That isn't how I talk about things, but it certainly contributed to winning the tender'.¶

### Intelligent optimisation

'At first we didn't want to be too distracted by financial considerations – to simply make the best without limitations. Of course, that took us above the budget. To avoid throwing away the baby with the bathwater, the next stage was to cut expenditure in consultation with the creative experts, our technical experts and the funders. That resulted in different choices from what we would have done on our own. A sub-contractor would have scrapped the tower costing 700,000, but it was kept because of its crucial importance for the link with the landscape. We weighed up the pros and cons together down to the last moment. We really needed one another to be able to optimise in an intelligent way. As a result, all of the parties are now the owner of the result'.¶

The design delegation does not consist of architects alone. Mijksenaar (routing), Bruns (exhibition building), Shosho (animation and films) and Fabrique (house style, digital media) are also involved. Integral design may not be easy, but it is worthwhile, Schellekens believes: 'I'm convinced that this approach yields better results. But of course the risks you take involve other concerns too'. If it is to work, he says, you must not be afraid to give other disciplines room. 'Parties must dare to show their vulnerability and be able to deal with uncertainties. And after all the free associations, everyone must be able to conform to the constraints of time and budget – at some point creative minds have to stop designing, which they find rather difficult. And yet it is precisely the different contributions of the various disciplines that yield a good result in combination with one another. For if we were all to play the same game, nothing new would ever emerge'.¶

PHILIPS DESIGN

Inventions with a spectacular effect

Philips welcomes design as an essential success factor. The company employs no less than 500 designers, but is quite happy to bring in an outsider if necessary. ‘By integrating design better in your company you arrive at innovative solutions’, says Paul Gardien from Philips Design.¶

‘Design now plays a much larger role in the differentiation of products than in the past’. As Vice-President of Philips Design, Paul Gardien is familiar with both parties to a commission. ‘The discipline has become very mature in the last twenty-five years. While in the early 1980s it was still mainly about thinking up a shape and colour, by now design is capable of influencing the entire business strategy of a company’. He and a colleague wrote an essay about this: *Walking the Walk, Putting Design at the Heart of Business*. It describes how Philips Design was transformed from a sort of external design agency to become an integral part of the entire organisation that is involved in everything that the electronics company does.¶

**Human aspect**

In the past the electric lamp factory used to launch new products on the basis of a technological invention, but today the starting point for innovation is the demand of the consumer. And that is where the expertise of the designers lies, as Gardien is aware: ‘Design is people-driven. It brings the human aspect into the picture, and that is what Philips needs’. With more than 500 designers in 18 locations, Philips has a good deal of in-house design disciplines, but it still tries to cooperate with external designers. ‘There are so many factors involved with a new product: it is not just a new coffee machine, but also packaging, instructions, a marketing campaign, website and shop concept. All of that has to be designed. We have a lot of in-house expertise, but you can’t have a first-class retail designer or fashion designer on your permanent staff as well. If the product calls for it, we – very selectively – bring in external experts’.¶

**Next step**

Innovation is of vital importance, Gardien confirms. It is not for nothing that the new slogan has become Innovation and You instead of Sense and Simplicity. The concern hereby emphasises that it wants to serve people’s interest through innovation. Gardien distinguishes two forms. ‘You have the design of the next TV or MRI scanner: that means looking for the next step in a structured way. But we also aim for innovation with a much broader reach. That is more about socio-cultural trends of the future. We do not think about those on the basis of existing Philips concepts, we invent new ones after thorough research has been carried out’. So you can find research papers on the Philips website about a new approach to urban development, the improvement of the living and learning conditions in Chinese schools, or the search for solutions for health care that is under heavy pressure as the result of ageing.¶



### Growth market

The direct challenge to Philips is in the field of health care too. 'We are active in three areas: consumer electronics, information, and health care. The third is the least visible to the consumer, but it is certainly the largest growth market. Hospitals are increasingly judged in terms of performance, not only medically but also in terms of how customer-friendly they are. We respond to that challenge with crossover concepts and products that are developed in close cooperation with medical specialists and scientists'.

The example of one of those concepts that has won loads of design prizes in the last few years is Ambient Experience, a line of products to make hospital visits less intimidating for the patients while at the same time creating a more pleasant work atmosphere for the medical staff. Gardien: 'Ambient Experience is about the complete experience of the patient in the hospital. We have not just looked at the equipment, but we have scrutinised the whole context'. This resulted in a series of products in which light, video, audio and interactivity reassure patients, such as an MRI scanner in which patients can wrap the whole space in warm colours and choose visual projections and sounds with which they feel comfortable. And for children there is the Kitten Scanner, a small replica, in which they can scan their doll while an animated explanation is given of how it works'.

### Great improvement

The results of Ambient Experience are spectacular: both adults and children feel more relaxed, with the result that they are better at lying still, there is less need to repeat the procedure, and the expensive equipment can be used more efficiently. The project is not just about expensive equipment in inspection and operation rooms. It has been extended to include, for example, a lighting plan for the wards in which the light is a little more yellow when they wake up, brighter at midday, and agreeably dimmed at night. It is a simple principle, but it does help the patients to feel better. 'Ambient Experience is a good example of design-based innovation', says Gardien. 'If you innovate on the basis of technology alone, you never arrive at these kinds of solutions'.

#### Programme Council

Jeroen van Erp, *Creative Industry Topteam*  
Kitty Leering, *PICNIC*  
Madeleine van Lennep, *Association of Dutch Designers – BNO*  
Janny Rodermond, *Creative Industries Fund NL*

#### Authors

Chris Gruijters  
Koert van Mensvoort

#### Interviews, cases & editing

Willemijn de Jonge

#### Design

Piet Gerards Ontwerpers  
(Piet Gerards and Maud van Rossum)

#### Production

Lidewij Veenland

#### Translation

Studio Mason ai Monti, Rome

#### Publisher

Federation of Dutch Creative Industries

#### Printer

Zwaan Printmedia

#### ISBN

978 90 821762 1 6

This publication is the second in a series about how designers can contribute to solving problems in other sectors. The cases included have been selected primarily for the lever effect they have produced. This initiative is part of a broader movement to convey the importance of the creative industry for other sectors. Besides this brochure, meetings are organised in which designers enter into dialogue with producers, principals and researchers from other sectors. All these activities are supported by the parties listed on the next page.

All descriptions and data of the published projects are based on the material submitted by the participants to the publication *Crossover Works*. The editor is not responsible for errors or incomplete reporting of project data.

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Bulletproof skin, an app that can suppress panic, a fair smartphone. It sounds like science fiction, but it is already here! More and more creative minds are joining forces with experts from other sectors. This leads to surprising discoveries: attractive solutions for social and economic challenges. And that is just inspiration for more. *Crossover Works!* 