EDITORIAL

We are just starting a new year full of new resolutions, ideas, plans and dreams - and so is Turn The Page with a new committee. We are proud to bring to your table an issue full of controversy, risks and edgy design for a fresh and energetic new year start. To open, we give you something to think about in our Cover Story “The evolution of controversial thinking”. The theme of on the edge design is continued in the rest of this issue. We explore this subject by presenting contexts and situations in which designers deals with extreme situations. Also, we include cases in which the design itself or the innovation it brings leads to unexpected results or even fails. Indeed, sometimes design fails, but failure is not always bad! If you are looking for inspiration on this area, do not miss “Why failure is worth the risk” on page 46. If you want more on the subject of failure, jump to the discussion about the Google Glass on page 38, or have a look at the “Clash of the Titans”, the Versus between the Fiat Multipla and Ferrari F50 on page 23 - hard comparison, right? As the perfect addition, we are bringing back “The story behind”, an inspiring feature to tell the unknown story of companies, this time presenting LEGO. Did you know they started with a big setback? Well, you can check all the details on page 48.

To keep you all pleased, we also featured different perspectives on how designers deal with risky scenarios. If this is your thing, enjoy one of the interviews included in this issue: Audi designer Wouter Kets on page 43 or IDE alumnus Frank Bleeker on page 38. If you like it even more extreme, go to page 26 to get insight in the real extreme design on Mars and Antarctica. We also investigate how today’s world full of innovation is on the edge. To find more, go to the discussion around one of the most controversial services nowadays, Airbnb (page 14), or to page 36 to see how design can help technologies to “Cross the chasm”.

We hope to inspire you to take risks in 2017, as we already did by giving our own new touch to this issue. Enjoy!

Chairwoman
Diana Gonzalez
The Tipping Point

Have you ever wondered why some innovations fail and others make a big difference in society? “The tipping point” is the writer debut of Malcolm Gladwell, a journalist with an interest in social sciences, published in 2000. The title itself means “a magic moment when an idea, trend, or social behavior crosses a threshold, tips, and spreads like wildfire.” The book analyses the sociological circumstances that go hand in hand with ideas, products and messages. Examples that are used in the book are the rise of popularity of Hush Puppies shoes in the nineties and the drop in New York crime after 1990.

Hayden Kays is an artist

Is he really? Hayden Kays mystifies me. He makes collages, pictures and writes with his typewriter, but what he does most: he makes you think. Words like “bold”, “provocative”, “criticizing” and “hard hitting” are a common way to describe the message behind his rather traditional craftsmanship. Is his humour deadpan? See for yourself!

Adobe Mobile Apps

Launched in November, these apps might not be new to you. Adobe released three new apps that are in line with their computer programs. They are free to download, but you will need an Adobe CC subscription to use the features. Photoshop Fix lets you retouch and enhance photos with a professional outcome. Photoshop Sketch can help you sketch and paint vivid images using its wide arrangement of functions. The last one is Comp CC. This app allows you to design wireframes using images, text, shapes and fonts. From our experience, we would only recommend this to people with a rather large tablet and you may need some sort of pen for your tablet to fully enjoy these apps.
Learn to how draw

As it says in the name, this app is made to teach you how to draw. Thinking of a good idea is hard, but convincing people that it is a good idea is harder. Visual communication can help you understand and develop your thoughts even better. So if you have a fantastic idea and want to illustrate the interaction, or maybe you just feel like being creative, this app features lessons for everyone. Will Sliney, a well-known comic book artist, created more than one hundred tutorials to help you build up your characters and figure work.

Black Mirror

You might or might not have seen it, but Black Mirror is the new Netflix series that everyone is talking about. Its audacious interpretation of the future examines our society’s relationship with the media. Learn from it or just enjoy it, this series achieves it all. The long episodes extrapolate where current trends in communications technology might lead us if we do not foster our collective consciousness and humanity. I suggest you to take an evening off for this because one episode takes 40 to 70 minutes and you will not want to move.

Bizarium

An ode to all inventors and creative minds: Bizarium is a unique museum that revitalizes crazy, genius ideas. With true craftsmanship, they build inventions that only existed on paper for centuries. Bizarium shows that innovations never go to waist but are a building block for new science, new technology and new design. If you do not believe that every fail is a victory as well, or if you just want to get enthused, Bizarium is a great place for you to go. The museum is now open in Sluis.
ISEA Competition

Marco Reijne en Biem Wibbens, both alumni of the TU Delft, are the first and second prize winners of the ISEA student project competition 2016. They received their award on Friday 16 December, after a lecture from dr. David James ‘Innovation for Olympic success’, for undertaking an individual project on a sports engineering topic. Marco Reijne was given a certificate and membership of the ISEA for his project “The next level in pole vaulting: A mechanical model based on exploration”. His winning scription proves that the mechanic model they developed can describe the entire movement of pole vaulting and hereby optimize the mechanical properties of the stick, the technique and movement of the athlete for a maximum outcome. The second place went to Biem Wibbens. In his project we discover the relation between the materialisation of a hockey stick and the performance of the player. From this research he developed a new concept, that uses three layers, to provide a more specialised experience to the hockey player.

Purmundus Challenge

The Purmundus Challenge is an international design competition for 3D printing that took place for the fourth time on the Formnext congress in Frankfurt. On 17 November, prices were awarded to the most creative and pioneering products in the area of 3D-printing. Anne Bekker, a student at IDE, received the third price with her Arc Bike. This is a fully functional 3D printed stainless steel bicycle, proven to allow opportunities for aesthetics, ergonomics, as well as physical performance.

Jumpthegap is an International Design Contest promoted by Roca since 2004 that is looking for new, innovative and sustainable concepts for the bathroom space. This seventh jumpthegap is aimed at creative people who think towards the future whilst designing today. We understand the innovation concept as the anticipation of users’ new desires and needs, as well as (why not?) the transformation of dreams and desires into reality. Sustainability is one of the most important principles to take into account when innovating in the bathroom space. In the era we are living, we have to grantee products oriented to the saving of water, energy and resources. Young design or architecture students born from 1 January 1982 onwards from all over the world may participate. As long as they submit their application on 15 March 2017. In the course of the competition, two winning projects will be chosen and will receive a prize of €10,000 each!
Scientifically informed lighting design

In 2016, Sylvia Pont was appointed Antoni van Leeuwenhoek Professor for her work at the Perceptual Intelligence lab (PI or π lab). She leads the research on perception at the Faculty of Industrial Design Engineering (IDE). She specialises in light and its interactions with material, shape and space. “That is not about lamps or bulbs, but about the scientifically informed design of light and its visual effects”, says Pont.

To describe the light in a space you only need a few easy and intuitively understood phrases, according to Professor Pont. She demonstrates them with the help of a golf ball or rather a ‘beam catcher’; “see, the light in this room is coming from above, as the ball is lighter on top. We call that the ‘focus’ component of the light”, she explains. “You can also observe that the shadow is not 100% dark. That is caused by ‘ambient light’, the kind of scattered light you get when you go skiing in the mist. Then there is ‘brilliance’, light with an angular frequency, like under a starry sky.” Those three phrases – focus, ambient and brilliance – can be used successfully to design the lighting plan for a space, as students are being taught in the course on Lighting Design.

Layers of light
That is not something that happens on a large scale. “Ninety to ninety-five per cent of light plans in the Netherlands are created using standard methods.” A good example – or rather, a bad one – is office buildings, which work with guidelines and minimum specifications. “There is a very strong focus on light intensity and the functionality of the light. It works, but it’s terribly boring.” In the Lighting Design course, students learn to design light that does a better job in terms of atmosphere, aesthetics and experience. “We use those terms to describe light as a resource for designing layers of light. At some point, you also have to supplement it with technical details about different types of lighting that are distributed throughout a space in a certain way and make sure that the guidelines are followed, but the result is much more ‘perceptually intelligent’.”

Design teaching often takes a very practical approach. “We take field trips, for instance to the Lighting Application Centre at Philips. You can really see what light can do there. They have a gorgeous light installation in the hall and all sorts of demos,” Pont explains. There are more good examples. “There is a small group of independent light designers, people who are truly designing light the way we think it should be done, based entirely on atmosphere and experience. They contribute to the Lighting Design course by giving lectures or workshops.” Then there are the ‘lighting guerillas’, which
Supermarkets do all sorts of things with light, including special light bulbs that make the red in tomatoes stand out more.

Lighting guerilla
During a ‘lighting guerrilla’, students jointly create special lighting effects on buildings. In the past years this has been done among others at TU Delft’s Aula and Library buildings, and in the city centre of Delft at the former St. Agatha convent, which now houses the Prinsenhof Museum. “We think of a concept beforehand and set out with an enormous amount of torches and lamps. Students are instructed what they should be lighting and at some point we all light our torches together. The effect is usually amazing.” Says Pont. “That always creates quite a few ‘aha’-moments, when students suddenly realise what light can do. It is completely different from designing light on paper or on a computer screen.”

Perception
So that is how light is designed, but what about how it is perceived? “When you measure light in a space, it is a very complex thing, affected by all sorts of complicated inter-reflections. People only perceive a simplified version of it. We can effectively perceive the overall direction and dispersion of light, but we overlook those complex reflections.” “We do not need them in our day-to-day lives,” she explains. “Your brain bases its perceptions on prior knowledge, for instance the awareness that light generally comes from above. Your visual system supplements as needed, but it mainly selects the things that are important to you. It generates an interpretation from all that information. In other words: our visual system is very intelligent. You can rely on it just fine, even though you know you cannot always believe your eyes.”

The research being done in the Perceptual Intelligence Lab (π–Lab) is different from most other research on perception. “It is usually done using very abstract images, often displayed on a monitor,” Pont says, “perception in the real world is often very different than on a monitor. The real world is a bit ‘grubby’, and it has a complex structure. That is why we prefer to do our research in the real world, or at the very least with photos of the real world.”

Background colours
Knowledge about perceiving abstract stimuli cannot automatically be extrapolated to perception in the real world. That was also apparent from research that Pont recently conducted with Dr. Rick Schifferstein from the Design Aesthetics department. “We looked at how people perceive fruit and vegetables against backgrounds of different colours. That is important information for developing packaging materials and presenting your products in the store.” Pont says. The literature on perception states that background colours make a difference for how the colour of objects in the foreground is perceived. “When you take those results for 2D, abstract images and test them using real vegetables, you get different results. More and more evidence is coming to light that background colour has almost no impact on how you perceive the colour of actual objects, but it does affect how you perceive whether those fruit and vegetables are fresh.” How this works exactly is still open to debate, but it is a fact that shopkeepers are already using colour in practice. “Supermarkets do all sorts of things with light, including special light bulbs that make the red in tomatoes stand out more.”

Proof for Pont’s design approach can also be found in perception research. “We have tested how sensitive people are to certain components of light. You then find a similar classification as we use to describe light. So this approach we use intuitively and from practical experience, is supported by our scientific results,” explains Pont, who is not surprised by this connection between intuition and perception. “Intuition plays a large part in art and design. Painters often base their works on sharp observation. Painters do not do things randomly. They somehow possess some practical knowledge that...”
we are now discovering the theory of. I am fascinated by this interplay between art, design, perception and optics.”

Golden Age
That interaction is one of the main focal points of a NWO NICAS project, which TU Delft partners in. The Netherlands Institute for Conservation, Art and Science (NICAS) is funding a large-scale research project on material expressions in paintings. “We are focusing on still lives from the Golden Age,” Pont states, “we will be pooling knowledge from materials science, perception, optics and art history to understand how those painters were able to paint materials so incredibly well. What methods did they use to portray grapes, fish, velvet or other materials so convincingly?” The researchers suspect that the way they were painted contains information that can tell us something about how human perception works. “We think that those painters were exceptionally good at picking up on certain key elements in visual information, something that our perception is probably also based on.”

Painting techniques are an important part of the study. “Those effects are related to how the painting process worked: in what sequence was the tableau applied to the canvas, and how did they introduce structure and patterns? They also used material properties, like the translucence of the paint,” Pont explains, “in some way, they managed to use the whole combination of it all to trigger something in your visual system that makes you perceive those material properties. We are very curious to find out how it actually works.” Besides that academic curiosity, it opens up a wide range of possible applications. “Visual communication design is all about finding a visually convincing way to convey a message. Computer graphics companies can also benefit a great deal from knowing how to convincingly depict a piece of velvet so it looks like velvet.” Pont expects that knowledge will also be useful in creating visualisations during the design process. “When you are designing, you want to be able to show clearly what it will look like, and that is not always easy when you are creating prototypes.”

Smart frame
An extension of this research is the design of a smart frame, which can be used in combination with a 3D print of a Van Gogh painting. 3D prints of paintings are part of a partnership between Océ and TU Delft. “One of the best things about a 3D print is that you are allowed to touch it, which is of course inconceivable for a real Van Gogh,” Pont says, “and when you touch the painting in a specific spot, the lighting moves along with your hand. The lighting ensures that the surface structure becomes highly visible due to all sorts of shadow effects. You can suddenly see that the blue flower was painted very differently from the yellow flower, and the flowers are done differently than the vase. At the same time, it is telling a story about how the painting was created: you can feel, hear and see it.”

Collaboration and multidisciplinary approaches are recurring themes in Pont’s work. That includes the EU training network she is participating in – her fourth. “That multidisciplinary collaboration has substantial added value. You are integrating knowledge from computer science, neurobiology, psychology, physics,” Pont states, “it is like small-scale research institutes where PhD students receive extremely intensive training. They also go on exchanges at other participating institutes, and twice a year symposia are held with guest speakers and workshops. It is like a pressure cooker, really. It leads to new, exciting international collaborations for the PhD students and for us as well.”

Sylvia Pont
Sylvia Pont started out studying psychology, but switched to physics. “I discovered that I was fascinated by perception, but not from the perspective of a psychological approach.” She says. She graduated with the Physics of Man department at Utrecht University, completing her PhD on perceiving shapes through touch. Following several years of research on computer aids for people with vision and hearing impairments, she returned to Utrecht. “I did post-doctoral research on ecological optics. That is the optics of the real world, particularly real materials and light. These are described in perception-based units of measurement: what information enters your eye and how your visual system – your eyes and brain – processes that. Not the way a physicist would do it, since you would not be able to see the light through all the rays.” She came to TU Delft in 2008, and now heads the Perceptual Intelligence Lab. In 2016, she was appointed Antoni van Leeuwenhoek Professor.
On Friday 31 March Sylvia Pont will hold her inaugural lecture and symposium ‘Light in the eye of the beholder’.

ide.tudelft.nl

Spotlight: Jan Schoonhoven
Several years ago, Professor Sylvia Pont worked on the light design for an exhibition on Delft-based artist Jan Schoonhoven, who specialised in wall reliefs. “I gave a lecture at Museum Prinsenhof once on light and perception and all the factors that play a role in what and how you see.” Following that lecture, Pont was invited to make a design for the Schoonhoven exhibition. “If you Google his work, the way it is presented in different exhibitions, you often cannot even see that it is the same piece. The museum wanted to show that phenomenon.” Cris van Hoogdalem, whose Master’s project was supervised by Pont, did a number of preliminary studies using copies of his work. “We tried all sorts things in collaboration with the Beersnielsen bureau. We eventually designed a light set-up for the exhibition. The works of art were lighted interactively, changing before your eyes from cones to vertical lines to all sorts of shapes. That exhibition was widely acclaimed. People were amazed by it and could not believe it was real.”

Opportunities for collaboration with Pont and her colleagues at the π–Lab are constantly opening up. “We already have researchers working on scent and taste, hearing and vision. We will be adding someone working in haptics – touch – within the short term. Then we will have a full range of modalities to start working on multi-sensory design. It creates an intensely synergistic effect. When you combine effects that influence different senses, the whole is greater than the sum of the parts,” Pont states. The lab is already using an interdisciplinary approach that bridges various research groups and it works closely with the Faculty of Electrical Engineering, Mathematics and Computer Science. “But everyone who is willing and able to contribute something here is more than welcome.”
“A DESIGNER IS ACTUALLY JUST A COG IN THE WHEEL WITHIN THE COMPANY”

IDE alumnus Frank Bleeker works at Boska, a traditional Dutch company based in the polder near Bodegraven that makes products related to cheese. Four of his designs, including a cheese slicer and a fondue set, have received the Red Dot Award for Product Design. Two other products received an honourable mention.

text by Maarten Muns | photos by Hans Stakelbeek | layout by Renske de Jong

As a student at TU Delft and the first period after that, Frank Bleeker was not interested in cheese at all. As a freelancer, he designed all kinds of different things, ranging from street furniture to a columbarium - a decorative wall in which urns are stored. For six years, he worked as a designer for TV broadcasting company SBS6 on its Domino World Record programme. The fact that Bleeker ended up at Boska was pure chance: “I ran into a former classmate who was a consultant at Syntens, then an advisory body of the Ministry of Economic Affairs,” Bleeker explains, “his work involved visiting SMEs to boost innovation. He had recently been at Boska, explaining that what they were doing was not future-proof, because of competition from the Far East. The only way of protecting oneself against that is to invest in the design of your own unique products that cannot be copied there. He said to me: “I have just been at Boska, perhaps you should talk to them, as it could be of interest.””

Bleeker’s first product, which he still describes lovingly as a ‘pot with legs’, was a tapas-sized cheese fondue with a tealight under it on a wooden base. “I am still proud of that product because it was so different from everything on the market at that time. That contrasted with the sales culture that prevailed here. It was customary to look for market successes and repeat them. That is always a challenge.

Bleeker started at Boska in 2005, the first product designer to join the company’s staff. “For my boss, it was as if a sweetshop had just opened. I said yes to everything he asked me. I should probably have said straight away how long it would take because I had to start designing products like a madman. Prior to that, he had never heard of the possibility of designing products yourself, but he was aware that there was a lot more money to be earned in the consumer market.”

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of working as a designer for a commercial company. You have to do something new, but it should not be too different from what already exists. You need to keep it recognisable and avoid too many experimental gimmicks. But, I am able to adapt because I just love the job."

The commercial aspect prevents Bleeker from producing designs that are really ‘on the edge’. "I do have new and different ideas, but they never make it to production. There is a lot of enthusiasm at the outset, but inevitably the question comes: will the customer really want it? My most innovative design at Boska was the ‘barbeclette’. It is a raclette pan for use on the barbecue, which did not exist yet. It is not something that I feel very strongly about as a designer. Everything we do here is reasonably safe. I have no desire to be a shining star. As a designer, you are just part of the company: a cog in the wheel. If, as a designer, you want to change the world, you should go in an artistic direction or you need to explore the subject at an academic level. In a commercial environment, it is about seizing opportunities and carefully building on existing successful products."

"On the other hand, I also see seizing opportunities as a privilege and a chance to colour outside the lines. To differ slightly from what is already there, with our cheese fondue set, with candles underneath, instead of a burner, for example, or the ‘barbeclette’. People can see that it is different and start wondering how it works. It is actually exactly the same – the pan is just heated in a different way. Also, there is the cheese curler, that you can use to scrape off nice thin rosettes of cheese. It is a French invention (‘girolle’) and relatively unknown in the Netherlands. Boska is the only company in the Netherlands to design and manufacture its own."

Bleeker really enjoys working at Boska. Alongside his work, he also designs and makes products and thinks a lot about his profession. “Personally, I am really interested in the issue of climate, especially how it affects mobility and transport. The wrong approach is currently being taken in that area because all kinds of heavy electric all-terrain vehicles are appearing. That is really bad. In my view, sustainability is all about wasting as little energy as possible. Car manufacturers do not seem too concerned with that at the moment. This is partly because legislation insists that cars are like tanks, in which you must be able to drive into a wall at 120 km/h and still survive. These safety requirements are ridiculous. People who drive calmly and sensibly are safe! A car needs to be stripped back to a basic object used to get from A to B. That is the only road towards sustainability."
If everyone likes it, it is not good enough.