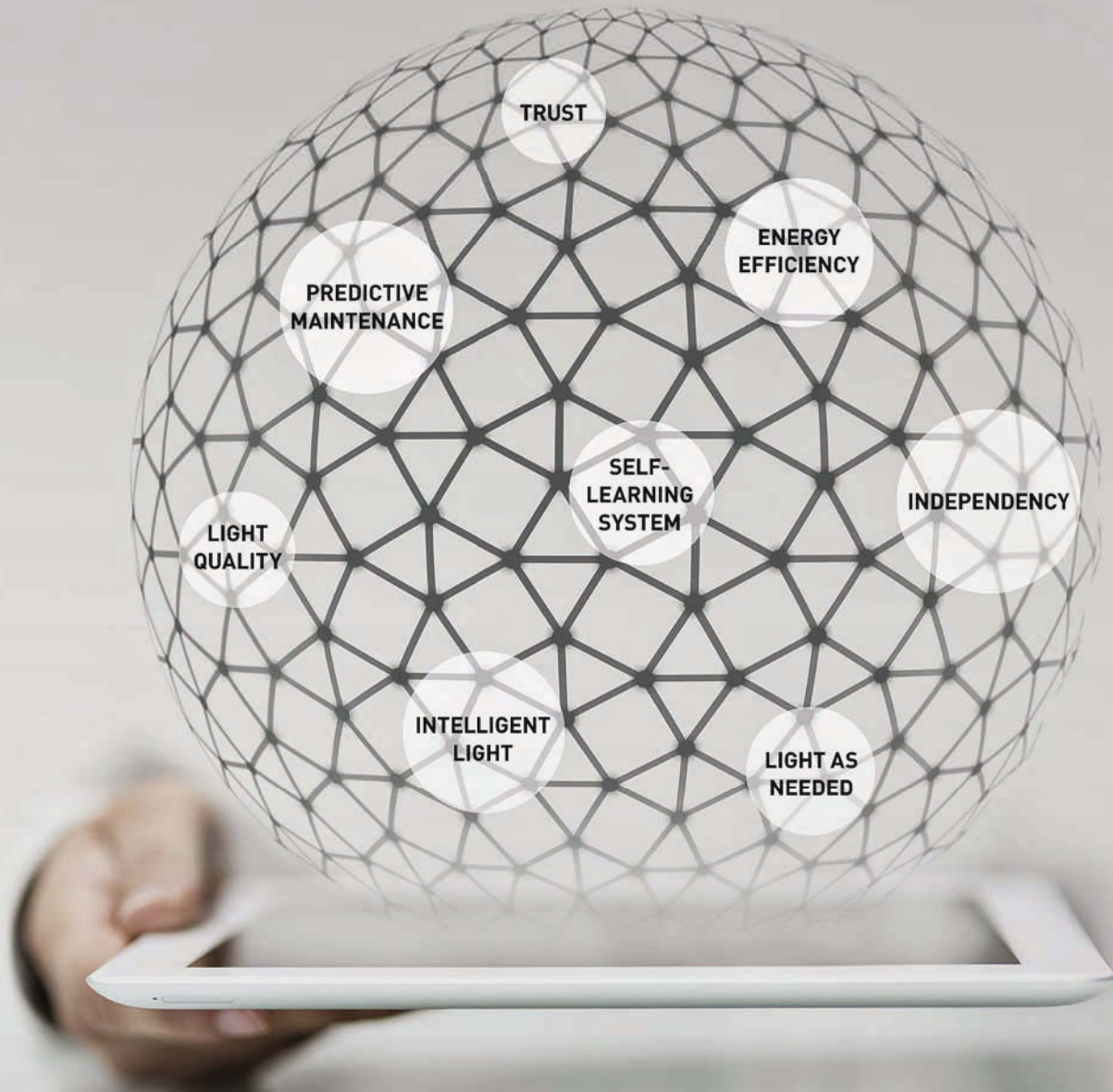


3lux:letters

LIGHT | ARCHITECTURE | TECHNOLOGY 1 | 2016



lux: Smart Light
The future of lighting

lux: Intelligent Light
Digitalization in the lighting industry

lux: Innovative Light
Team InnoVenture as ideas think-tank



Dear Readers,



The concept of “smart” is the talk of the town: smart technology, smart city, smart home. Today, almost anything can be smart. And the smart movement has reached the lighting industry, too. But what does the term actually mean, and is there a clear definition for it yet?

With this new issue of 3lux:letters we want to take you on a journey exploring the different aspects of this smart future and also show you what can already be achieved today – and not just in the world of lighting.

In our lead article (page 10) Frank Völkel, co-founder of the platform Smartest-Home, casts a glance at the origins of intelligent, networked houses and gives an outline of what actually constitutes a “smart home”. We talked to “digital Darwinist” Karl-Heinz Land, founder of the strategy and transformation consultancy neuland, about the advances in digitalization and the impact this development will have (page 24) – it could definitely spell a better world.

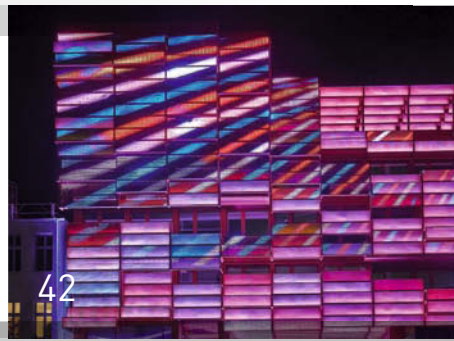
Just what digitalization could mean on the ground in the lighting industry and what opportunities arise from intelligently illuminating things is something we discussed with Dietmar Zembrot, CEO of the TRILUX Group (page 30). In our short interviews we have also consulted three experts from different fields – Christoph Kögler (T-Systems), Sven Gaeßler (Gatermann + Schossig) and Thomas Fobbe (TRILUX) – on how they themselves perceive smart technologies and what observations they have made in this context in their everyday work (page 20).

In line with the theme of this issue, at the end of last year we established our InnoVenture team as the ideas think-tank for new business models that blazes the trail for digital transformation in our company. We discussed with TRILUX’s Mark Henrik Körner and Michael Spall (page 40) what tasks the interdisciplinary team primarily handles and what its objectives are. Parallel to this, our question for planners explores what the concept of “smart” means for is and what opportunities there already are in this regard (page 38). And we present the “Nest” research facility in Dübendorf, Switzerland (page 32) – it’s a real-life lab where pioneering products, materials and techniques are tested in close to real-life conditions.

I hope you will enjoy reading the current issue of 3lux:letters!

Yours sincerely,

Thomas Kretzer, CEO TRILUX Vertrieb GmbH



SMART LIGHT

04	lux: VIEWS	New luminaires and current installations, architecture and events relating to light, from all over the world
04	lux: HISTORY	A “smart” development
07	lux: STATEMENT	The potential for smart controls – Johannes Berschneider
09	lux: READING	Three books recommended by the Editorial board
10	lux: SPOT	Smart home: What constitutes a smart home – Frank Völkel
16	lux: IMPRESSION	Natural intelligence or artificial intelligence
20	lux: REFLECTION	Christoph Kögler (T-Systems Multimedia Solutions), Sven Gaeßler (Gatermann + Schossig) and Thomas Fobbe (TRILUX)
24	lux: SMART	“New structure”, interview with Karl-Heinz Land (neuland); “Intelligently Illuminated”, interview with Dietmar Zembrot (TRILUX); “Nest” in Dübendorf, CH; Klosterbrücke in Arnshausen, DE
38	lux: SERVICE	What does “smart” mean for TRILUX and what opportunities does it already offer?
40	TRILUX	TRILUX InnoVenture
42	lux: ART	Klubhaus, akyol kamps:bbp architekten; Onion Skin, Olivier Ratsi; Lasermaze, George King Architects; Your Star, Olafur Eliasson
46	lux: CURIOSITY	The power of colour
47	lux: SOURCE	Colour organ
47		Imprint

Classics in a new light

Rethinking everyday objects – lights in particular – and giving them a certain “wow” effect is a fundamental part of the design philosophy of the Studio Cheha. The three new models ZIGGi, DESKi and CLASSi by designer Nir Chehanowski complement the existing series of light objects with 3D effects. In the new designs, the imaginative principle of glowing mesh lines on acrylic glass creates the seemingly three-dimensional outlines of classic table lamps. The optical illusion only becomes apparent from a direct side view, whereby the illusion of space dissolves and only a narrow shaft of light remains. The distribution of light and the resulting, unusual shadows also enhance the eye-catching appeal of the three.

www.bulbing-light.com



Photos: Studio Cheha

lux: HISTORY

A “smart” development

Technology has developed rapidly in the past few years – be it cell phones, TVs or motor vehicles. It seems as if smart devices and futuristic gadgets are now being presented and launched several times a day. Smart technology is being integrated into devices and used by all generations ever more frequently. With luminaires too, smart progress is not only perceptible, but primarily visible. The BLUEmotion range of linear luminaires by TRILUX already marked an innovative step towards the future of technology. A modular system for individual and strip lighting and with adjustable light colours, the suspended luminaire with coloured RGB mixtures and different colour temperatures created suitable atmosphere in any office work situation. With the Lunexo LED TRILUX now offers a

smart luminaire that allows the colour and intensity of the light to be controlled flexibly and automatically. The smart surface-mounted and suspended office luminaire ensures optimum lighting indoors and is simple and self-explanatory to operate. It can be linked to a mobile terminal by WIFI and is available from the TRILUX LiveLink user app. Motion sensors, the fully automatic daylight control, and the smart device connections make the Lunexo LED a smart luminaire in state-of-the-art offices with new work processes, areas that encourage creativity, and flexible spatial concepts. This smart luminaire is an ideal addition to adaptable environments.

Not only the functions performed by office luminaires perform have been advanced, the design too is contemporary and modern (above: BLUEmotion; below: Lunexo LED)



Photos: TRILUX

Tunnel vision

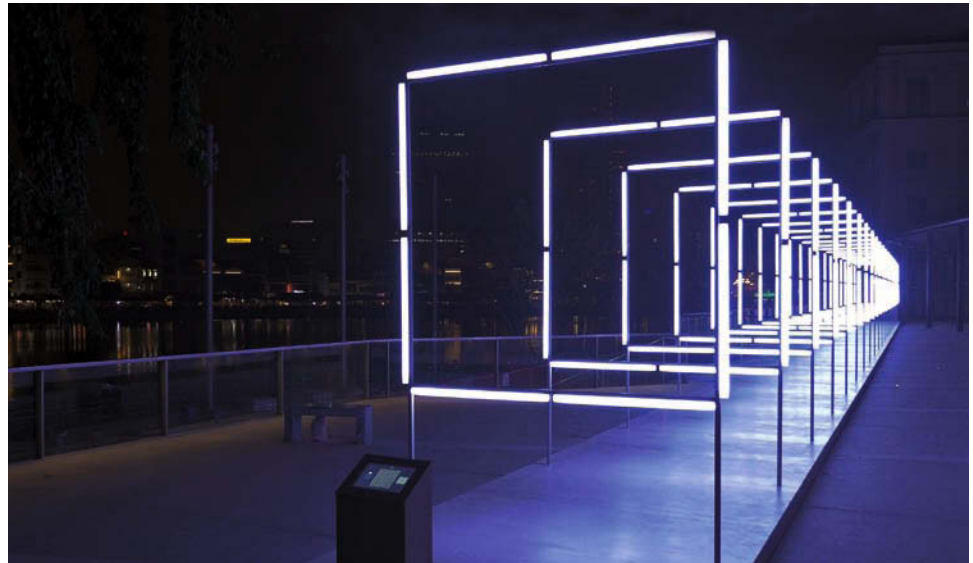
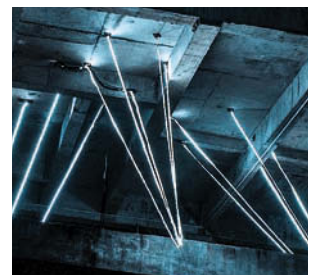


Photo: TETRO-TRAFIK

As part of the River Nights Festival in Singapore last year, French creative studio Trafik created a light-and-sound installation that was visible from afar. For the river promenade in front of the Asian Civilizations Museum, Trafik joined forces with Tetro and Maize (sound) to create a 60-metre-long tube consisting of 20 illuminated square frames. The short but pithy name "160" indicates the number of fluorescent lamps used. The designers' fondness for expansive graphics combined with the possibilities for interaction affords recipients the opportunity to influence the installation in three ways, namely the colour, the graphic sequence and the sound. Like a musical instrument, no end of new sequences of light and sound can be composed. www.lavitrinedetrafik.fr



Photos: Romaldas Buozis

Star mesh

As part of the Urban Xchange Festival in the Malaysian town of Butterworth, architect and artist Jun Ong installed a light sculpture that radiates from an empty building into the street below. The idea behind the concept of the star, which consists of over 500 metres of steel cable and LED light strings, was to generate a form of creative disruption. The spatial layering of art and everyday surroundings was designed to prompt festival visitors to think about how a participatory and resident-friendly design can be realized for the district. What's more, Jun Ong's "star" is a symbol of the profane material nature of advertising culture, which results in an artistic enhancement of the urban space. www.jun-ong.com

Moment of dynamism

With his Freeform series, John Procario creates almost surreal-seeming unique pieces. Conceived as functional objects, they are first and foremost a manifestation of the creative approach of this artist and designer. The name given to the series of sculptural lights points to the impartiality in the process-based creation of their form, derives solely from the material and its inherent possibilities. From the execution of the bending moment until just before the brittle material breaks, sculptures develop which, in their rigidity, reveal an unexpected dynamic. The expressive curves of the wooden strips are emphasized by the almost mystical-seeming, integrated lines of light.

www.johnprocario.com



Photos: © Procario Designs



Photo: Patrik Gunnar Helin

Highlighted

Lights in Alingsås
September 30, 2016 - November 6, 2016

Be they huts, factories, trees or bridges – in the Swedish town of Alingsås numerous, generally everyday things will be illuminated at the end of September and thus highlighted or indeed elevated to the level of art. Having evolved from a student initiative 17 years ago, the light festival now draws thousands of visitors every year and is an important event in the world of international lighting design. Renowned experts from all over the world lead workshops in which students develop new lighting concepts for public spaces in the Swedish town. In cooperation with students of electrical engineering, the up-and-coming designers realize their ideas, which can then be enjoyed as part of a one-week festival

www.lightsinalingsas.se



Photo: Egbert Trogemann

Lichtparcours Braunschweig 2016
June 11, 2016 – September 22, 2016

A fleeting moment

For the fourth edition of the "Lichtparcours" or "Light Path" in Braunschweig, this summer the focus is on works that can be enjoyed around the clock. With works distributed around the city and across the Veltenhof harbour in Braunschweig, the 15 artists invited have brought their visions to life in the urban context. The vast majority of the ideas can not only be experienced both night and day, but were also developed to be site-specific and are supposed to prompt interaction among visitors. Depending on the prevailing light conditions, the artistic interventions can be continually rediscovered afresh. For example, with her light installation under a bridge, which incorporates the reflective surface of the water, Danica Dakić has created the iridescent image of an eye.

www.lichtparcours.de

lux: STATEMENT

The opportunities smart control offers

On, off. Bright or dark. The classic light switch is far from obsolete, but it is becoming more versatile and nowadays often actually functions as the user interface of smart home systems. Innumerable gradients between bright and dark emerge, making a building's illumination a design tool. Thanks to smart control, the way an interior or a building and the space around it are displayed takes on totally new dimensions. As an architect and interior designer, I am pleased whenever I can develop a smart lighting system with my clients. Operating and programming it should not be too complicated, so that changes are easy. Outside, a building and its surroundings can be made visible at all at different times of night and day. Smart control enables different scenarios, which just as much make sculp-

tural effects visible as they create atmospheres. Smart control inside enables scenarios that suit the time of day and situation. In addition to the security function, which conveys the impression of an occupied building, thus putting off burglars, inhabitants' and users' preferences can easily be catered for. Playing with colours becomes simple and, in conjunction with the light opens, up marvellous design possibilities, which give me as an interior designer a superb tool for creating a lighting concept.



Johannes Berschneider
architect and interior designer
Berschneider + Berschneider, Pilsach



Photo: Erich Spahn

Do It Yourself



Photos: Thomas Hick

Originally developed by Thomas Hicks as a wedding gift for friends, the designer quickly recognized the potential of this folding lamp. The possibility of determining its ultimate form individually and thus playing a part in the design process makes these lights a preferred choice for lovers of design. The sculptural format is inspired by origami, yet permits a variety of crystalline freeforms. The numerous variations are made possible by the pre-perforated fold lines on the wafer-thin stainless steel blank. The light also emphasizes and nuances the geometry of the folds. In addition to the six standard colour combinations, the object can also be produced according to individual colour requirements.

www.folding-lamp.com

Light and sound playground

In the midst of the harsh Montreal winter, 30 brightly shining seesaws illuminate the Place des Festivals in the Quartier des Spectacles after dark. "Impulse" was developed as part of the Festival Luminothérapie and is a joint effort by Lateral Office, CS Design and the EGP Group. The illuminated playground equipment aims to invite playful passers-by to interact. The sound, developed by Mitchell Akiyama, responds to the movements, underscoring the light sequences that continually develop anew. The idea behind "Impulse", together with other light installations as well as a number of video projections, is to enliven the public space in this lively, creative city district in winter too. The festival takes place every seven years and complements the standard indoor cultural offering.

www.quartierdesspectacles.com

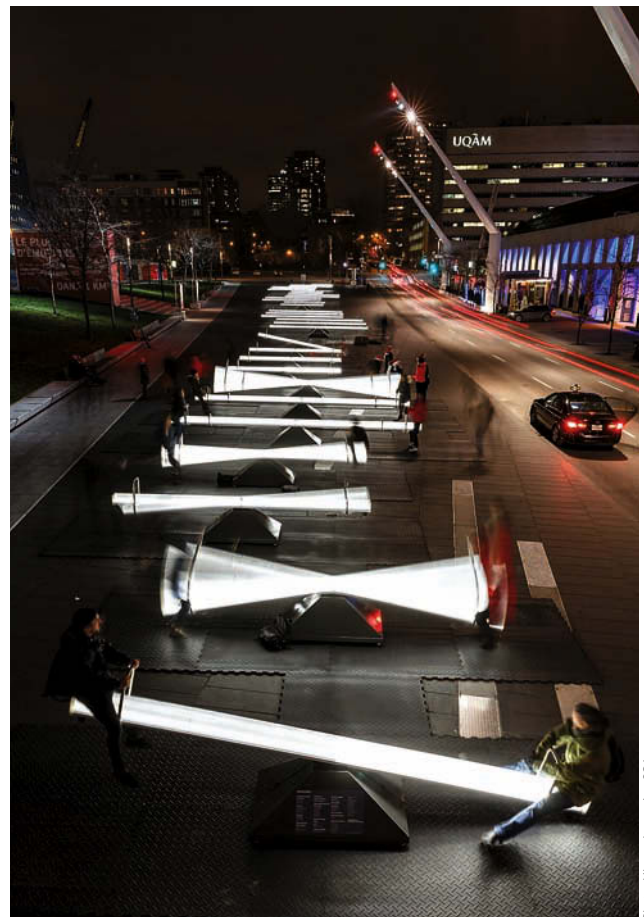


Photo: Ulysse Lemrise USA

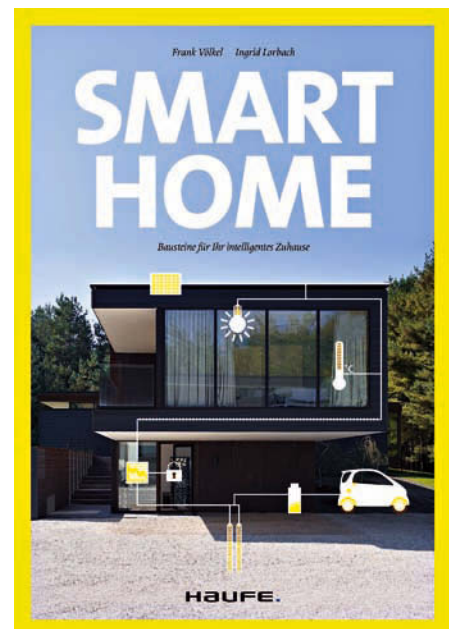
Licht und Beleuchtung
Handbuch und Planungshilfe
 ("Light and Lighting. A Manual and Guide to Planning.")
 Philippe P. Ulmann
 First published 2015
 by DOM publishers
 408 pages, over 950 illustrations
 22.5 x 28.0 cm
 Hard cover
 with light-absorbing varnish
 German
 € 88.00
 ISBN 978-3-86922-350-6
 www.dom-publishers.com



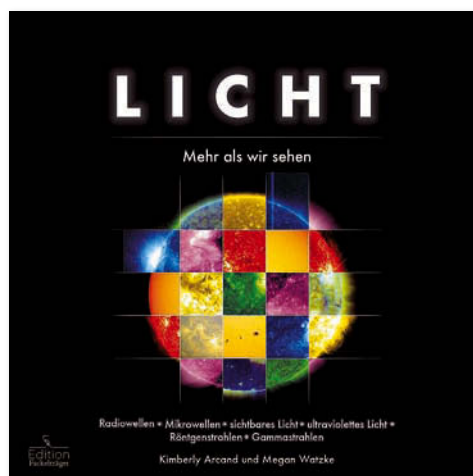
With his volume "Licht und Beleuchtung" ("Light and Lighting"), Philippe P. Ulmann documents in detail the change in lighting technology and electronics as well as the requirements in terms of energy consumption and cost savings. With numerous comparisons, diagrams and photographs Ulmann, who comes from a "lighting family" and has worked in the industry for 40 years, outlines the parameters of light planning. Over 65 international projects ranging from public buildings to private residences, to bridges, commercial structures, high-rises and outdoor areas demonstrate how artistic and natural light can influence architecture as well as interior spaces in an individual way.

Smart Home
Bausteine für Ihr intelligentes Zuhause
 ("Smart Home. Building Blocks for your Smart Home.")
 Frank Völkel, Ingrid Lorbach
 First published 2015
 by Haufe-Lexware
 224 pages, colour illustrations
 16.0 x 24.0 cm
 paperback
 German
 € 49.95
 ISBN 978-3-648-04900-6
 www.haufe.de

Turn down the heating, open the blinds and switch off the lights – communication between building technology and devices and even remotely controlling them is no longer an idea for the future. In this practical book Frank Völkel, a journalist specializing in the energy and IT industries, and author Ingrid Lorbach show how easy it is to create smart homes and even to equip older buildings with intelligent building technology. Using graphics, diagrams and sample projects, the authors explain this topical theme in individual chapters covering areas such as lighting, shade and multimedia. In addition, sample solutions show how regenerative sources of energy can be used to save costs and offer independence from the energy market.



Licht
Mehr als wir sehen
 ("Light – More than we see")
 Kimberly Arcand, Megan Watzke
 First published 2016
 Fackelträger Verlag
 208 pages, colour illustrations
 25.3 x 25.3 cm
 Bound with a protective cover
 German
 € 29.99
 ISBN 978-3-7716-4652-3
 www.edition.fackeltraeger-verlag.de



From radio waves to microwaves to infrared, visible and ultraviolet light, not forgetting x-rays and gamma rays, this book by Kimberley Arcand and Megan Watzke covers the full spectrum. The authors, who have already managed numerous research projects, explain the complex spectrum encompassed in the scientific-technical theme of types of light to the reader in a way that is exciting and understandable. Impressive photographs of such things as the Centaurus A galaxy or the planet Venus help to clarify how light influences life on Earth and in the universe. The book came about as a result of the United Nations' International Year of Light 2015.

WHAT MAKES A HOME SMART

People have long since dreamed of smart homes that respond to the respective inhabitants and facilitate everyone's lives. However, genuinely networked homes only began to emerge in the 1960s. So what does the term "smart home" actually mean?

Frank Völkel

The washing machine is running, the light in the bathroom is still on, and someone has forgotten to switch the iron off. Everybody knows the worry of perhaps not having turned something off after all. No problem in a smart home. Although all the residents are out, nothing will happen because the house is set such that it can look after itself. When the washing cycle is finished the house automatically switches the machine off. In a room where no one moves for a certain length of time, the light turns itself off. Using an app on your smartphone you could also turn off the iron when you're out. In a smart home, in other words, life is safe, convenient, and energy-efficient. Technology and devices communicate with one another and are linked via a main PC, by which each individual device can home also be controlled externally.

I first entered a smart home at the Federal Garden Show in Munich in 2005. Designed for an architecture competition in 2001

and built by Allmann Sattler Wappner, the "Haus der Gegenwart" moved traditional single-family dwellings forward with its flexible use and networked controls. All electronic functions could be controlled centrally. Although in my opinion the "Haus der Gegenwart", which was closed in 2011, was not yet sufficiently networked, it was nonetheless what ultimately made me to want to build a smart home myself, and especially to live in it. I implemented my idea in 2008 with "Haus V", in which in addition to smart fittings I also integrated an energy generation system.

The entire home is smart

A home is deemed to be smart when it is able to control the technology in it independently, or with only minimal intervention by the occupants. This includes, for example, the lighting, shading, temperature control, security, multi-media entertainment etc. Smart building technology is based on cross-system



In the "Haus V" in Unterföhring, Munich, systems such as lighting, shading, heating, and ventilation are intelligently networked.

networking. The more individual systems such as lighting, heating, security, and shading are part of this network, the more complex it becomes to implement the individual functions. The networking begins with simple pushbuttons, switches and luminaires, extends to various sensors for temperature, brightness, and motion, and also includes individual household devices, communication technology and home entertainment systems. The network via which actuators and sensors communicate with one another is called a system bus. Building automation works best when as many systems as possible are included, as only then are isolated solutions avoided and the building can be smart throughout.

A smart home does not mean the same to everyone. Technology today is far more advanced than it was in the "Haus der Gegenwart" in 2005. A lot is possible and feasible, but there

are certain key features that are always present in a genuine smart home:

1. Electrical/electronic functions can be altered, the programmed system can be adapted at any time to the occupants' needs and to changed circumstances.
2. The smart home components are linked cross-system with one another. They can exchange information and each can be controlled individually.
3. All functions in the home can be automated and follow rules that the occupants can modify.
4. The overall functionality of a home is created by combining several individual components with integrated intelligence.

The interior shading automatically darkens the bedroom, thus helping the building's energy and heating balance.



Photos: Kai Arndt, Munich

5. The server, in other words the home's brain, has a complete picture of all information and device statuses. It is thus possible to reproduce this visually via a central operating panel, or operate it by remote control via a smartphone.

The beginnings of smart building technology

The idea that a building can take over functions automatically and independently, and respond, has been around for a while. In 1939, for example, an article appeared in "Popular Mechanics Magazine" about "Tomorrow's Electric Home." In it the author describes a networked home in which doors open automatically, guests are welcomed personally via an intercom, and the lighting changes to suit the occupants' needs. As in every aspect of life, with regard to building automation there were also opponents to technological progress. French film director Jacques Tati's 1958 comedy, for example, plays with

the anxieties that can arise when a networked building develops too much of a mind of its own.

The history of building automation is still very young. A distinction is made between the private and commercial uses of buildings. Building automation, including networking, has established itself primarily in the commercial sector. Only in the 1960s did buildings start to become genuinely networked. For the first time ever, fault notification systems were installed in larger building units using conventional electrical engineering. Central control systems became building management systems, and then building automation. It was not until 1987 that the European Home System (EHS) emerged, a system bus that operates via a building's electricity supply, which nowadays is part of the KNX standard. In 1991 the EIB/KNX-Bus standard was founded. KNX is an association comprising EIB, BATIBus Club and EHS. In



In the bathroom, constant lighting control takes the natural daylight into consideration. The individual atmosphere of the light can also be individually adapted.

2002 a binding KNX standard drawn up independently of manufacturers was adopted. The cross-system networking of heating, cooling, ventilation, shading, and lighting was initiated among others by Berker, Jung, Gira, Merten and Siemens.

2005: Haus der Gegenwart in Munich

Given its flexible use and networked controls the "Haus der Gegenwart", which was built for the Federal Flower Show in Riem, Munich, did actually advance the traditional single-family dwelling. All electronic functions in it could be controlled centrally for the first time.

2008: Haus V, Unterföhring, Munich

With its striking, futuristic shape, the building is almost self-sufficient energy-wise and is geared to its occupants' needs. It is peppered with technical subtleties: These include a cen-

tral technology shaft housing all the building's cabling for the electrics, control, heating, ventilation, and cooling – its nerve system. In winter the windows automatically remain shut, a ventilation system creating a good climate throughout. Blinds provide shade in summer and additional insulation in winter. The lights only come on if the occupants are present and when conditions require. On the inside LED lighting is used throughout, which adapts to the natural lighting and is coupled to lighting scenes. Via a photovoltaic system integrated in the roof the energy sourced is used to operate the household devices, or fed into the grid. Touchscreens can be used to call up all systems and the energy use (electricity, heating, water consumption).

2013: Showcase smart home, Darmstadt

Since 2013 there has been a show smart home in Darmstadt which Deutsche Telekom set up and in which devices such

In the open-plan eat-in kitchen sensors regulate the ambient temperature and brightness depending on the occupants' presence and the time of day.



as heating, lights, washing machine and other compatible electrical devices made by different manufacturers with various radio standards can be controlled by smartphone, tablet, or PC. The show home is a project conducted by the QIVICON initiative, which combines the smart home-products of different manufacturers.

Smart Home for all generations

Last year there were already more than one million KNX-networked buildings in Europe. For networking buildings there are now more than 7,000 products by 400 companies on the market. Nowadays there are hardly any limits to the technical possibilities. Older buildings can also be converted to smart homes. Lots of elderly couples with grown-up children are now having a house built again. The idea is for this to offer more convenience and security than the first one, which was far cheaper.

In 2008 I myself built a smart home, the "Haus V". My family and I enjoy our home, which thinks independently. When the last of us has left in the morning it automatically turns off all the lights, lowers the heating, and only heats the water just before we return. If we're away for a few days, we can regulate the temperature by smartphone such that when we get back it is just as warm as we like it. That is very convenient in winter. Thanks to our ventilation system none of us suffers from a dust or pollen allergy. Alongside comfort and greater health, our smart home also boasts optimum energy efficiency. Which not only gives us a clear conscience in terms of the environment, but also really saves money. And at least but not least our homes provides lots of security, from burglary as well as bad weather.



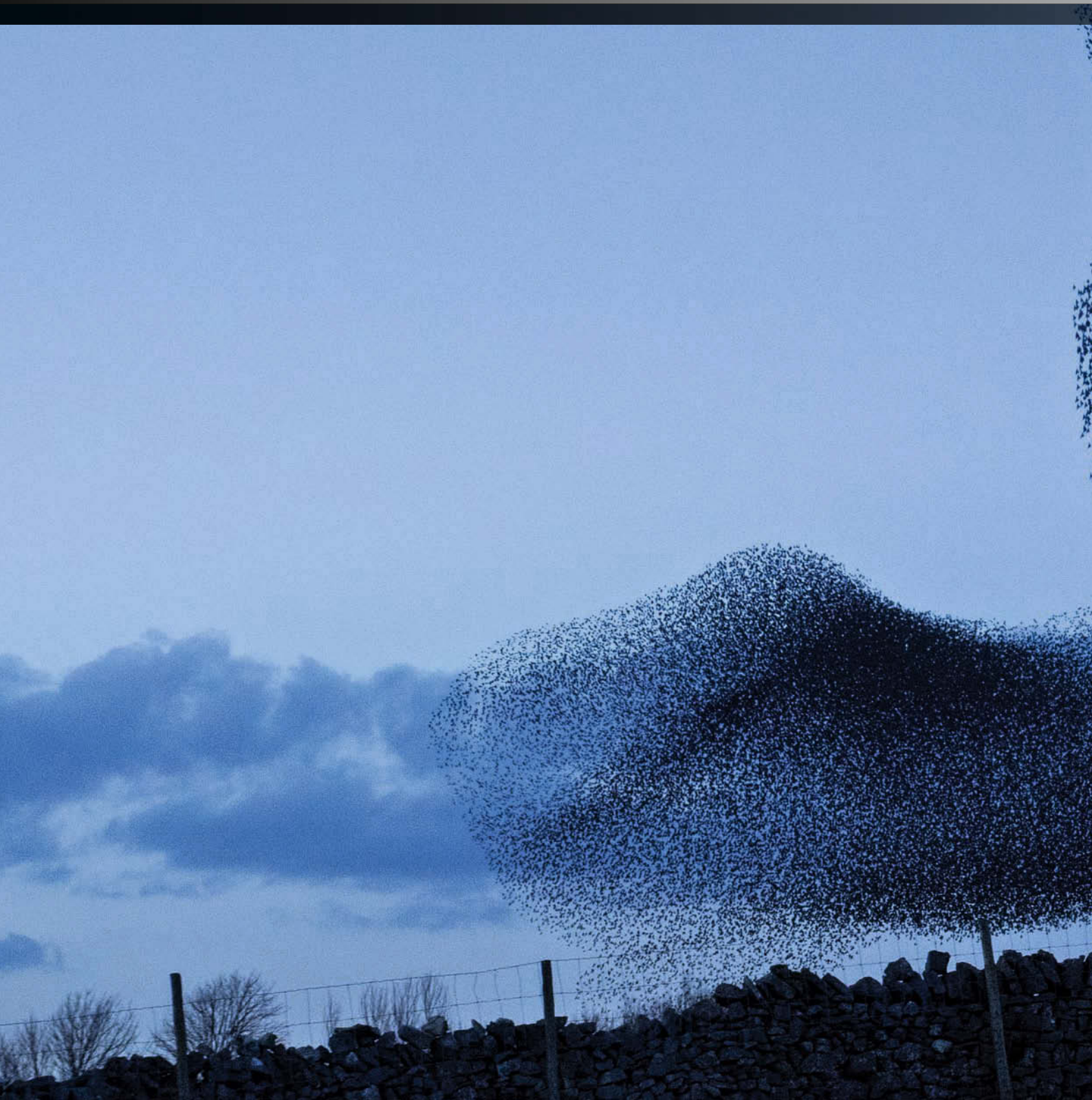
Photo: Kai Arndt, Munich



Frank Völkel

is a graduate mechanical and automotive engineer with several years' experience in the energy and IT sector. As co-founder of the Smartest-Home platform, a provider of smart home technology, he specializes in smart technologies. He is also the author of various books on smart homes.

www.infel.ch



NATURAL INTELLIGENCE



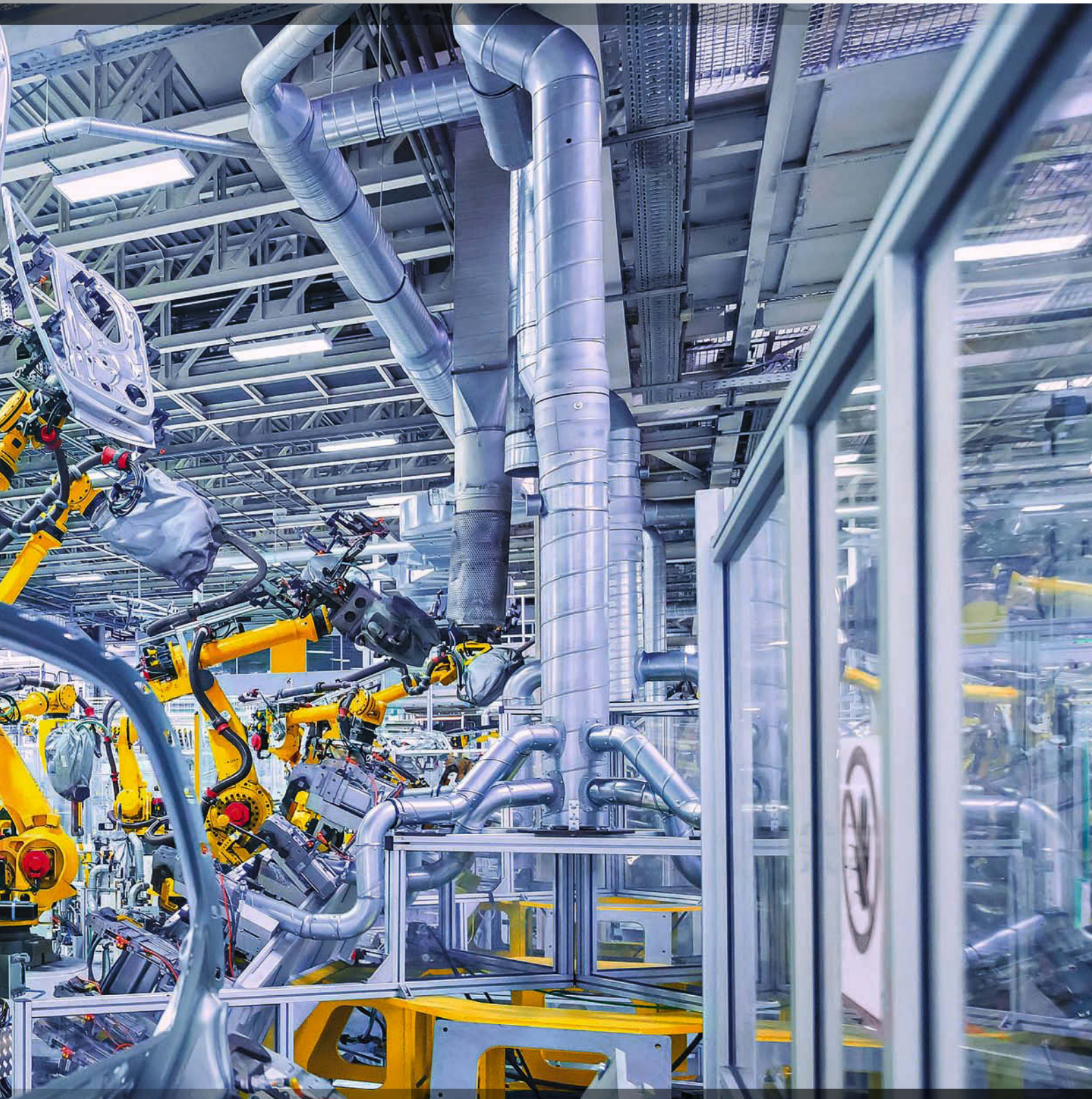
Flock of birds in twilight, photo: iStock.com/mikedabell

“There’s no beating naturalness ...”

Lyricon 1, Hans-Christoph Neuert and Elmar Kupke (Publisher), German poets, writers of essays and aphorisms



ARTIFICIAL INTELLIGENCE



Robots in the car factory, photo: Nataliya Hora / Fotolia.com

“Hardware and software are like body and soul.”

Erwin Koch (*1932), German aphorist

LOOKED INTO

3lux:letters asks three experts three questions on smart technology.



Christoph Kögler
Head of Innovation
T-Systems Multimedia Solutions

Smart technology is starting to intervene increasingly in our everyday lives. What do you find so fascinating about this intelligent development?

Christoph Kögler: The Internet has existed for over 50 years, but we are just seeing one of its biggest changes: It is becoming omnipresent and invisible in everyday life, the way electricity and telephony are invisible – they simply come out of a socket in the wall. As a user you don't need to worry about what is behind it all or how it functions. Today, the Internet is anything other than invisible. We still need special appliances to use it, such as laptops, tablet PCs or smartphones. New smart technologies such as the Internet of Things will in future give us the opportunity to let the Internet disappear behind the devices and be integrated into our surroundings: into the wall, the desk, the coffee machine, the car and the street lamps.



We can access the Internet today with laptops, tablets, smartphones, etc.



Sven Gaeßler
Architect
Gatermann + Schossig, Cologne

Sven Gaeßler: Smart technologies are becoming ever more important for building and process controls and are increasingly adapting to individual needs. Our everyday lives are determined by networking and mobility. Data gained from user behaviour (consumer data) and outside influences (weather data) can be used meaningfully. On the back of such insights we can operate buildings far more efficiently by means of customised technology concepts. And the systems respond to changes ever more flexibly. With a view to implementing ambitious climate objectives, smart technologies coupled with an efficient building skin comprise an important part of the construction world.



Thomas Fobbe
Assistant CTO at TRILUX Group
TRILUX, Arnsberg

Thomas Fobbe: They are making life ever easier. I am really taken by the growing networking of devices and the world of analytics that thus arises. Objects that previously were not related now “learn” from one another thanks to user patterns being analysed. This analytical approach will enable service providers to offer users customised products tailored to their personal needs and wishes.



Haus Neufert in Cologne (2013)



It is not only in the smart home that everything is networked.

Many people are still averse to accepting these technologies. What is your work like on the ground?

Christoph Kögler: Firstly, using them is still complicated. We may no longer need to wait for the PC to get running in order to use the Internet, and touchscreen and voice recognition have already made many things simpler. But user friendliness remains the key criterion for acceptance. Which is why I and my colleagues always focus on the users and the benefits for them. Moreover, precisely the "Internet of Things" requires great expertise as the technology is complex and multi-layered. There are different sensors, for example, data transmission, smart algorithms and the user interface. If this all melds in a convincing solution that solves users' actual problems, is easy to use and is fun, then we've done a good job.



Photo: iconimage / Fotolia.com

The "Internet of Things" is intended to make people's lives easier.

What do you think should be improved for all users to discern benefits for themselves?

Christoph Kögler: There's an immense reach to the digital transformation, as it affects not only companies and business models, but each and every one of us and society as a whole. The relationship between people and technology is currently changing dramatically. An era of hyper-innovation has started. There are risks, such as data protection and security, and equally there are opportunities. Companies that do not miss out on the digital transformation but actively structure it on behalf of themselves and their clients are growing faster than ever and conquering markets that until recently did not even exist. It is important to me that for all the technology, humans still take centre stage. Digital transformation requires knowledge, freedom in decision-making and therefore digital sovereignty.

Christoph Kögler

After many years in project management, Christoph Kögler is now head of the Innovation Department at T-Systems Multimedia Solutions, where he is in charge of various strategic business models, including the "Internet of Things" (IoT), Smart City and Big Data. Moreover, he coaches young companies and company founders and gives keynotes at international conferences.

www.t-systems.com

Sven Gaeßler: My company has since the 1990s concentrated on process workflow and building technologies for construction projects. Our goal is to minimise the energy and resource requirements for building and operating structures and to rely here on technology, natural systems and regenerative resources. At the very beginning of planning the team sits down with the client and develops concepts tailored to the site and conditions, and this impacts on how the structure is built and operated. If the additional potential of data evaluation via operational monitoring is used, then facility systems can be monitored and customised better to needs, to the benefit of the occupants and users.

Thomas Fobbe: We must realise that service providers are able to compile profiles of our user behaviour if the real and digital worlds are more closely networked. The risk of someone filtering out a Thomas Fobbe profile to spy on me is pretty improbable, mind. It doesn't stop me from availing myself of all the benefits the digital world offers me. In business life, people are much more careful with data. Possibly because of the greater responsibility toward employers. At home, we swiftly simply tick the box by the small print without knowing what the terms and conditions actually are. We should be more sensitive in both worlds to not blindly agree to things without thinking about the value we offer service providers with our data. Which is why many employees first have their boss approve the use of a service such as Dropbox.



Photo: Rainer Rehfeld

Capricornhaus at the southern end of Düsseldorf Harbour



Photo: duncanandison / Fotolia.com

Revealing private data with care and attention.

Sven Gaeßler: A knowledge of how to use smart technologies, in particular in residential construction, must become commonplace. Alongside the upfront investment cost, developers often associate smart technologies with highly complex facility controls. We have to dispel such reservations and create a greater awareness of the benefits of these technologies. Users must be able to use smart technologies more flexibly to address their personal needs without the power of the systems being constrained. In the final instance, users are the factor driving things; acceptance on their part boosts efficiency and the conscious use of smart technologies.

Thomas Fobbe: There must be far greater transparency for users about what data is collected and what then happens with it. They must be able to see the benefits and see real added value. If digitalization succeeds in making things simpler, cheaper, and automatic, then users will change their habits.

Sven Gaeßler

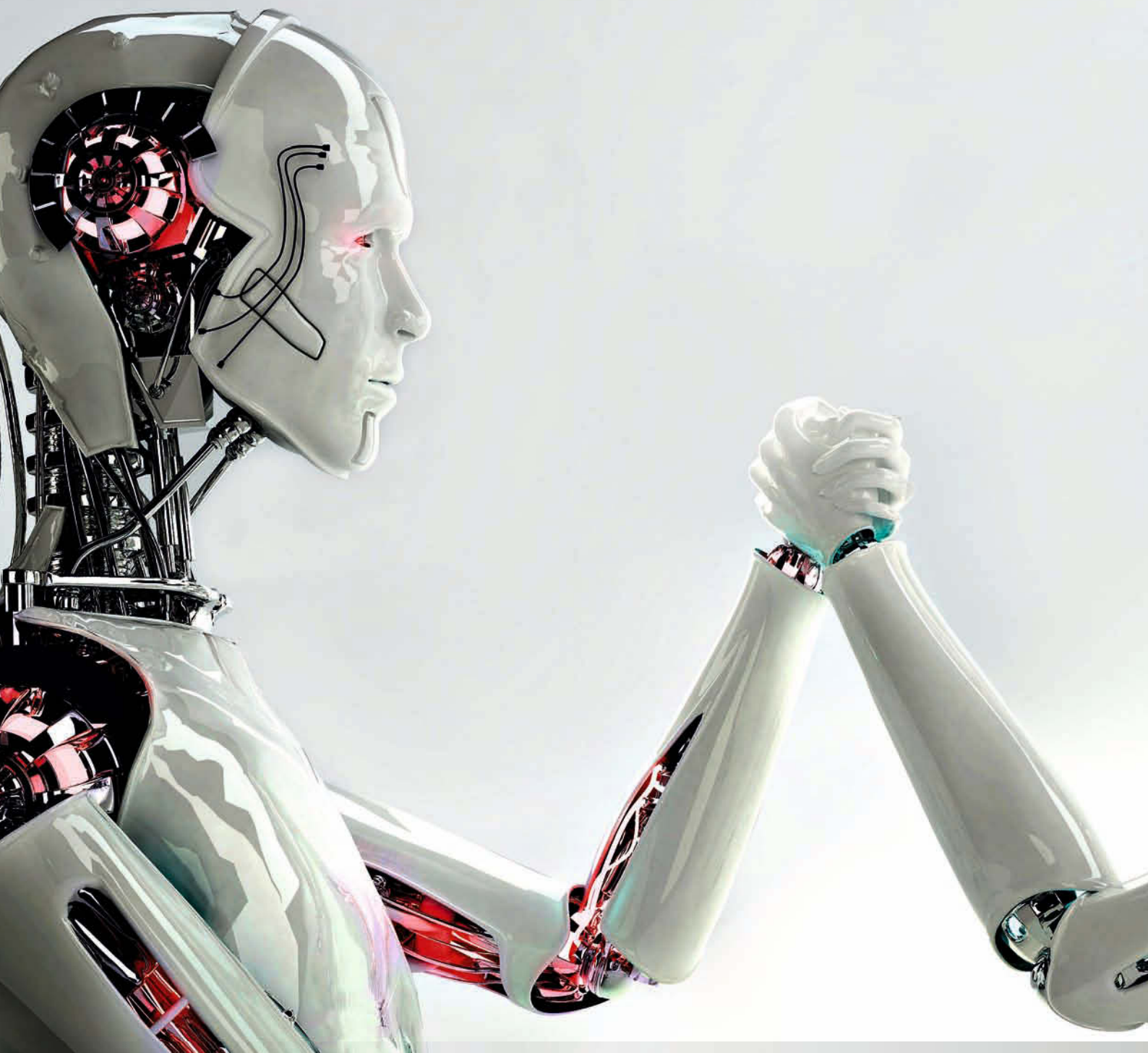
Studied Architecture at Cologne University of Applied Sciences from 1988 to 1993 and then worked until 1996 for Gatermann + Schossig. He then spent a year with KATALYSE-Institut für angewandte Umweltforschung, before returning in 1997 to Gatermann + Schossig as project manager. Since 2013 he has been Managing Partner of the architectural office.

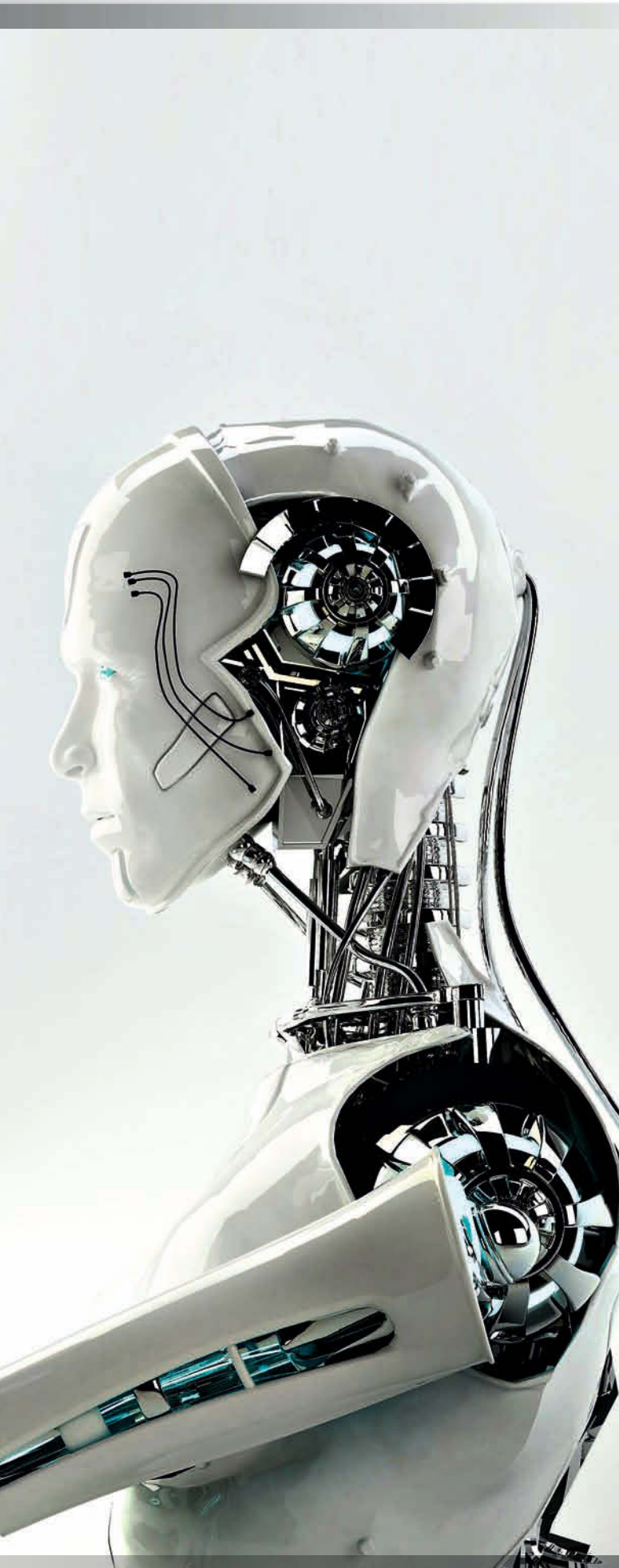
www.gatermann-schossig.de

Thomas Fobbe

As Assistant CTO Thomas Fobbe is part of the TRILUX Group Executive Board and responsible group-wide for strategic projects implementing entrepreneurial goals and strategies. He has now worked for 20 years in Procurement, Supply Chain and Facility Management, 14 of them in executive functions.

www.trilux.de





RESTRUCTURED

We are currently experiencing an era of epoch-making upheaval. Sooner or later, digitalization will affect all areas of life. The massive changes that at first sight seem threatening are the key to redistribution in a better world, says **Karl-Heinz Land**. 3lux:letters takes a closer look and asks the entrepreneur and author questions about the impact this development has on our life.



3lux:letters: How did you develop so great an interest in the digital revolution?

Karl-Heinz-Land: In the early 1980s I very quickly got into computing at university in Aachen. Even then, when bits were only just learning to walk, so to speak, I was fascinated by it. Computers had actually been around much earlier, but they were systems that cost millions, to which only a few had access. All of a sudden there were computers for the home! I began developing small software programs for an American company. At the time I was interested in the question of how this development would impact business. Everybody operating in the sector had made a career change. After all, there was no formal training. Ideas were called for, and the courage to learn by doing. Take Facebook, or even Twitter. Someone came up with the idea of developing a medium that sends messages limited to 140 characters. No one could have imagined that in the shortest of time millions of people would be

using this form of messaging. Courage, risk-taking and a love of trial and error were all that were needed to un hinge, i.e., digitize the world.

Mankind has always been confronted with change. Digitalization is particularly challenging, given the speed of change, along with dematerialization. How easy are people finding the change from an analogue to a digital world?

Everybody experiences this upheaval differently, depending on how they grew up with the changes. My 8-year old grandson now explains the world to me. Lots of processes I would never think of are second nature to him. On the other hand my parents, in their early and mid-70s, keep surprising me with how they use new media – not to have an easy life, but to satisfy their curiosity and broaden their horizon. People have always had to live with changes. Unlike all the epoch-making ones in the past, today there is the speed aspect as well, which hardly leaves us time



Photo: medipixblue / Fotolia.com

Today's wealth is created in the digital world, which is defined by the Internet.

to breathe. As such; lots of people feel overstrained, although switching laborious analogue activities to the digital world actually ought to help slow things down. But the opposite is the case. We think we have to communicate on all the channels available to us simultaneously, with the result that afterwards we often don't know with whom we were in contact, and where.

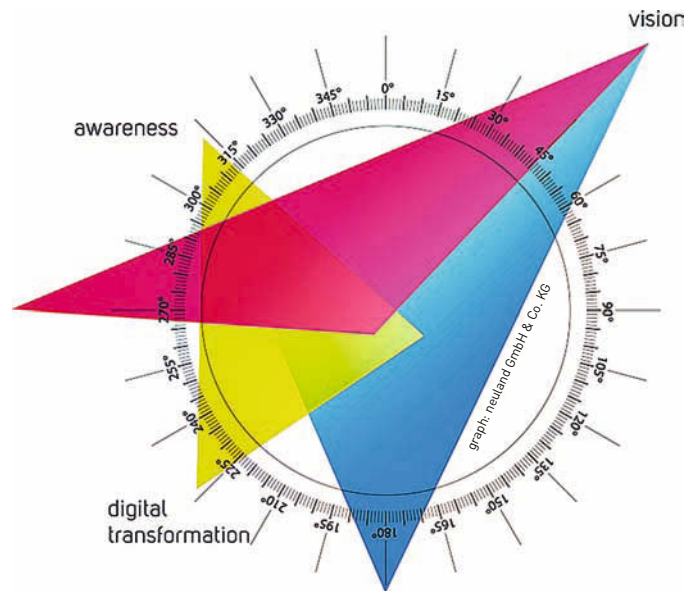
The majority of people already shops and uses services online. What does that mean for the traditional retail trade, and how is it responding?

Some retailers responded very quickly to the change in their customers' buying habits and set up parallel online channels. Even supermarkets now offer their entire range of goods on the Internet; and deliver for free. For a long time mail order companies failed to recognize the importance of offering their goods online as well. We have had already had the first victims, such as Neckermann and Quelle, Kodak and Praktiker. In the

mid-noughties, setting up online services involved huge investments and the courage to take risks, as no one had any idea how sales would pan out. The movie and music industry spearheaded the trend, followed by the media and banks. The retail trade is currently in the throes, as is industry. Ultimately, every business model will be affected by the revolution.

For all the digitation of markets, don't people miss the sensual perception experienced by everyone who manufactures or acquires a product?

Man is and will always be a tactile being. Our studies prove that there will be a renaissance in physical trading. We want to combine the online world in which we shop, place orders, and chat, and the offline world, in which we go to restaurants, and can smell, taste, and feel goods. As a customer, what I want less is to have to schlep home crates of beer and water, and packets of toilet paper and diapers. Online services make sense for goods



To make your business fit for the future, all companies must acquire new digital skills.

like this. Liberated from everyday purchases I can concentrate fully on pleasure purchases. Pleased with the clothes I have bought, I then go to a restaurant or bar. Central goods registration points mean that sizes, colours, or patterns not in stock can be procured in the quickest possible way. In malls customers are now offered the conveniences they have come to appreciate with online purchasing, which automatically leads to more customers in the shops. In some cases the wheels have already been set in motion. Amazon is in the process of opening 400 physical shops in major cities. MyMüsli, a company that was an online start-up, is entering the market with shops.

Dematerialization also means ever fewer products are needed. What are the consequences for industry and the labour market?

In the long run there will be no work. In the future we'll have a lot more free time, get back to nature. That's our lot. Computers and robots will do our work.

And how will we earn a living?

The Swiss showed us the way with the resolution on an unconditional basic income they passed on June 5 this year. I'm convinced that this form of life assurance will become established – all over the world. Production-wise, digitalized industry is far more precise and efficient. Robots and computers don't need vacation, there's no work loss due to illness. Who was it actually told us man was created to work? We just got used to it and that's why it is normal for us.

Where is the challenge?

In the future man will be responsible for asking questions and social skills. I believe in redistribution of the world, which has to happen, otherwise we won't just have a million refugees, but a hundred times that. Digitalization is driving mankind. It is the cause and at the same time the solution. I notice the beginnings of a slow return to certain core values. Do we really all have to consume more? We have caused Earth enough stress already.

I believe the rethink is slowly being understood, in private and business contexts. It will lead to education gaining in importance again. The current school system here is a strain for kids and teachers alike. One teacher for 30 extremely diverse pupils cannot spell a satisfactory result. Furthermore, after school there is often a lack of care at home, as both parents have to work. In future there will be two teachers for six to eight pupils. At least one parent will be at home waiting for the kids. Everybody will choose the type of work they enjoy, as the family upkeep will be guaranteed by the basic income.

So we're heading towards a future in paradise?

Yes, unless we kill ourselves beforehand. Unfortunately in many respects we're also in a position to do very foolish things,

though I still believe in man's reason. Digitation now represents the eye of a needle for humanity. As thick-headed as we are, we have to accept it. But on the other side the world will be a better place. It will no longer be geared to consumerism and possession, but to a share economy. Cities will become greener again, cars will disappear from downtown. Instead we'll rely on e-mobility. The world will use fewer resources. If we are to give a future to the three billion people who by 2050 will join the existing seven billion, we have no choice but to act this way. Ultimately, digitation is the solution.

Cornelia Krause conducted the interview

Karl-Heinz Land

is a "Digital Darwinist", "Evangelist" and founder of the strategy and transformation consultancy neuland in Cologne. He and his company provide pivotal impetus for launching the digital revolution in various sectors. In 2006 Land received the "Technology Pioneer Award" at the World Economic Forum (WEF) in Davos. As a visionary and international speaker he creates an awareness of the rapidly changing market and the physical nature of the change. Land has already published two books and is the co-author of the bestseller "Digital Darwinism – Branding and Business Models in Jeopardy" and the book "Dematerialisierung – Die Neuverteilung der Welt" (Dematerialization and the redistribution of the world).

www.neuland.digital



INTELLIGENT LIGHTING

Luminaires today can do far more than regulate the light volume or colour. They respond to the user's personal needs and adapt the lighting constantly to changing conditions. Just how intelligent luminaires now are, how digitalization is influencing the lighting industry, and what motion sensors do is something we asked Dietmar Zembrot at TRILUX.

How does digitalization influence the lighting industry in general?

Dietmar Zembrot: In the past there were luminaires with plain lamps that you only rarely could control and which therefore simply provided brightness. The focus was more on different norms, adherence to which constituted the key quality features for the customer. Today, the lighting industry offers a far broader range of possibilities and makes light far more than merely electrical output. Thanks to digitalization and the intelligent technology will install in products today we can favourably influence the light quality and place customers far more on centre stage, much better addressing their requirements.

What potentials and opportunities do the new smart technologies offer for lighting?

Alongside static situations that concur with the standards,

lighting can suddenly respond to far more subtle things: the change in daylight, the seasons, the weather, or even my personal needs and mood. Using Smartphones, and almost all of us have one, the luminaire can for example identify what is coming toward it and what lighting preferences that person has. In this way, a personalized lighting scenario can be activated and a workstation adapted to the user's needs.

In the past, the measurement was mainly the incidence of light in a room and the brightness of the light regulated accordingly. This is basically not sufficient. If, for example, there is only little light in the room, this can be because the summer sky is cloudy, or it could be autumn fog or spring drizzle. Assuming the same incidence of light in a place, people's expectations as regards light colour are often different. This knowledge, together with the user's personal sensibilities, can enhance lighting quality immensely.



How is interdisciplinary collaboration between the lighting industry and other sectors changing?

If a new development goes live it is hard to predict what synergies this will release. There will no doubt be numerous points of intersection with other segments that we today do not have on our radar screens. Take for example the topic of "motion sensors". It is important as regards lighting to know whether someone is in a room in order to decide whether light is needed or the luminaires can possibly be switched off completely to save energy. The security segment can, in turn, use such information to discern whether someone is in a room where they actually should not be. A cleaning corporation would be able to identify whether an office has been used on a particular day or not and would possibly not need to clean specific offices, which would again save time and thus money. There are no doubt numerous possible instances of interdisciplinary collaboration.

What impact do the changes have on TRILUX?

A good example of digitalization at TRILUX is our Live-Link, where specific use cases are pre-defined for certain spatial situations, but you can also set your own. Depending on the installation, rooms can be optimally illuminated and functions such as human centric lighting taken into account. In order to be able to understand our clients' needs even better, we have also set up the cross-departmental InnoVenture team (see interview on p. 40) which serves as the think-tank evolving ideas for new business models.



FUTURE RESEARCH

In the form of the “Nest”, the real lab run by Eidgenössische Materialprüfungs- und Forschungsanstalt, a unique research facility is arising in Dübendorf, Switzerland. Together with the country’s leading universities and international companies, pioneering products, materials and technologies can be tested under real conditions here – and key innovations in different fields advanced.

Theresia Saalbach

Test runs have started in the two completed modules Meet2Create (below) and Vision Wood (on the right).



Designed by Eidgenössische Materialprüfungs- und Forschungsanstalt (EMPA) as an open, dynamic platform, the "Nest" real lab enables direct knowledge transfer between R&D and the corporate world. The very appearance of the building shows this: Around an access core, several research units can be incorporated on different levels independent of one another. These units allow individual solutions to be tested under close-to-real conditions within the facility and different issues to be addressed holistically. In the "Meet2Create" research unit, for example, with Lucerne University of Applied Sciences and Arts as the patron, the interaction of people, space and technology is evaluated and optimised for the world of work. The goal: to adapt the offices of tomorrow to constantly changing requirements. Using three office scenarios, flexible and customisable systems are tested as the basis for coherent product development. Intelligent control systems such as TRILUX's LiveLink (combined here with the TRILUX Architectural special "Skygarden" luminaire) are carefully tested in an everyday setting. The synergies "Nest" offers come to light here: part-

ner companies involved not only collect data but also use the Meet2Create rooms – and get a clear view of things. In the "Vision Wood" residential module, the focus is on the diverse uses of wood and its energy aspects. In the residential unit initiated by EMPA and ETH Zurich innovative wood composites and functional surface coatings are used. Not only are the properties of the materials tested key, but also the ambient climate and atmosphere. Different lighting scenarios were created to meet the demands of the different living quarters. In the corridors, TRILUX's design luminaire Polaron IQ supports a homely mood, while in the rooms LC67 light strips spell a controlled, variable lighting system. In the kitchen, strong Coriflex beams illuminate the worktops evenly, while the Lesima 200 pendant luminaire otherwise provides pleasant light. A module is now being planned combining work and living spaces, with the focus on highly efficient concrete shell structures. Not only ultra-light components boost efficiency. Indeed, in combination with adaptive facilities technology and a solar façade, the unit is set to generate 50 percent more electricity than it requires.



The module's different building skins and geometries give the Nest its own adaptive look.

Location
Dübendorf, CH

Developer
Swiss Federal Laboratories for Materials Testing and Research (Empa)
Dübendorf, CH

Architect
Gramazio Kohler Architects, Zurich, CH

Photos
Roman Keller / Empa, Dübendorf, CH

Special luminaires
Skygarden
E-Line OT tunable with

Lichtsteuerung
LiveLink

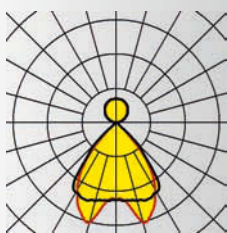
Luminaires
Solvan Flow
Light Channel LC67
Lateralo R
Polaron IQ
Lesima 200
Coriflex

lux: TECHNOLOGY

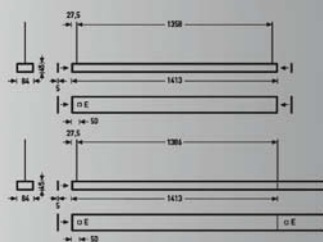
Solvan Flow



With its objective design and high light intensity, the suspended LED luminaire can be installed either on its own or in combination with others as a continuous line of light. The sideways emission of light in addition to the light output at the underside of the luminaire enables the combination of direct and indirect light. The highly effective, aluminised reflector chambers of the Micro-Reflector Technology (MRX) ensure glare-free and efficient light. The luminaire, which has an output of 6,300 lumens, emits neutral-white light with a colour temperature of 4,000 Kelvin and is screen-compliant in accordance with EN 2464-1. Solvan Flow is available in a white, powder-coated surface finish.



Luminous intensity distribution





CONNECTED

With the modernisation of Klosterbrücke and Brückenplatz, Arnsberg in Sauerland has not only become more attractive, but also taken a step towards becoming a smart city.

Monja Horrer

The town of Arnsberg lies in the north Rhenish Slate Mountains in the Ruhr Valley. It is characterised by the large loop of the Ruhr River, which embraces the old Medieval town on two sides. To better link the old town with the new town and centre, the bridge (Klosterbrücke) and nearby somewhat rundown square (Brückenplatz) were revitalised. Planners not only accommodated the needs of pedestrians, but also considered local storekeepers and businesses. New broad pavements mean the adjoining shops and restaurants have enough space to use the public area without restricting passers-by. The same spaciousness also defines the design of the bridge. Broad paths with high-quality benches invite strollers to linger – and enjoy the charming view of the River Ruhr. An intelligent lighting concept enhances the modern look. Elegant, anthracite-coloured, remote-controlled pillar luminaires make for friendly and inviting outdoor spaces when it turns dark. As all data such as operating hours, energy consumption or faults in individual luminaires are gathered by a gateway, maintenance is especially easy for the operator. In taking this future-oriented step Arnsberg is ideally prepared for the approaching smart development in the public realm.



The elegant remote-controlled ConStela luminaires make the newly designed outdoor spaces much more attractive in the evening and night-time.

Location

Ruhrstraße, Klosterbrücke
and Brückenplatz in
Arnsberg, DE

Client

Town of Arnsberg, DE

Architect

pesch partner architekten
stadtplaner, Dortmund/
Stuttgart, DE

Luminaires

ConStela

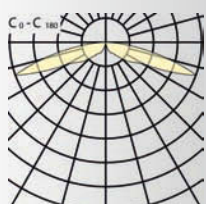
Photos

TRILUX

lux: TECHNOLOGY

ConStela

High demands are made both of street lighting and illumination in downtown areas. The ConStela modular pillar luminaire by TRILUX blends ideally with the cityscape. Not only is it perfectly suited to presenting public squares and paths, it also creates an agreeable atmosphere. Thanks to various modules the luminaire can be customised to suit its environs. ConStela is fitted with the multi-lens technology (MLT) developed by TRILUX and provides rotationally symmetrical light distribution. The luminaire's anthracite coloured body is subtle enough to merge with almost any background.



Lichtstärkeverteilung



PLANNERS ASK, MANUFACTURERS ANSWER



Thomas Kretzer
Managing director
TRILUX Vertrieb GmbH

What does “smart” mean for TRILUX and what possibilities are already at hand today?

“Smart” is a sweeping term encompassing an array of new technologies. “These technologies enable a system or a product to monitor its surroundings in real time and in sufficient detail, to cognitively process, relate and evaluate the information it obtains and to set in motion problem-oriented (re)actions”, according to the German Federal Ministry for Economic Affairs and Energy. It is not the individual product per se that is important, but rather “that all function- and performance-defining ‘objects’ work securely and reliably as an overall system.” It is already apparent today that many products and systems would forfeit their competitiveness if they were to go without smart technology in future. This in turn can take numerous different forms. At TRILUX for instance we have developed the light management system LiveLink. As early as the design stage functions and settings for various luminaires can be specified in preconfigured application examples, as well as subsequently adapted to existing scenarios. LiveLink makes “intelligent lighting” easy to control and user-friendly. A second important point

is so-called predictive maintenance. This primarily concerns orienting maintenance cycles on real needs and not on fixed intervals. This can lower costs and avoid unnecessary maintenance work. On the basis of LiveLink TRILUX has developed a prototype for predictive maintenance in which sensors show the current ambient conditions of the luminaires. This data can be stored and evaluated locally or in a secure cloud, enabling conclusions to be made about the operating status and maintenance requirements. A third way of integrating smart technologies is Building Information Modeling (BIM). It has been used in planning for several years, but only with all-round digitalization has it started to revolutionize building planning. BIM involves digitally constructing a building in three-dimensional form down to the last detail. Here all objects, such as doors or luminaires, have properties and are interconnected. In a BIM model a luminaire, for example, is among other things clearly defined via its installation site and connected load. The necessary data is provided by the relevant manufacturer and entered into the

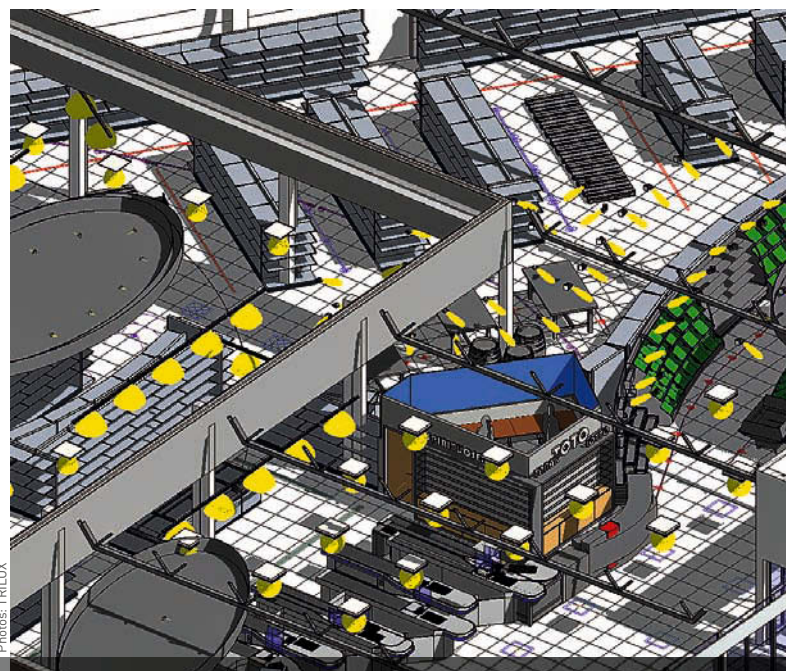


The LiveLink apps are intuitive and offer high user-friendliness and optimum convenience.

Representation of digital planning for a project using Building Information Modeling

BIM building model by the specialist planner. This results in a highly informative digital model that serves not only as a basis for construction and calculations, but also as documentation for facility management after completion of the building. We at TRILUX likewise provide BIM datasets for our entire online luminaire portfolio. On balance, "smart" offers numerous opportunities and is an exciting development, and will no doubt remain so in the future.

Do you have a question for the experts at TRILUX?
Write to: 3luxletters@trilux.de



Photos: TRILUX

TRILUX INNOVENTURE

Ongoing digitalization also extends to the lighting industry. And TRILUX already has its eyes firmly on the future. The interdisciplinary InnoVenture team is our in-house think tank for new business models and is paving the way for digital transformation in the corporation. Mark Henrik Körner and Michael Spall give us an idea of what InnoVenture does.

When was the InnoVenture team founded and what was the objective?

Mark Henrik Körner: In December 2015 an interdisciplinary team was set up named TRILUX InnoVenture to develop new business models for the coming decades. We thus seek to pave the way for the digital transformation of TRILUX, create new business fields, and develop solutions that extend far beyond just products.

Technological advances have the potential to change the industry more than has the LED revolution. There is immense growth potential. Digitalization of society will soon be one of the key economic trends. This includes topics such as the Internet of Things, Industry 4.0 and connectivity. TRILUX is convinced that the greatest challenge facing corporations will be the changes and opportunities associated with digitalization. Only if you square up to this transformation in the market can you tap new business models and stay competitive.

How was the team put together? What company divisions are included?

Michael Spall: InnoVenture sees itself as driving a digital agenda and is not a topic for small working parties. Instead, we need the input and strong support of all staff in the company. This applies across all levels, throughout the group. Everyone should feel called upon to make a contribution to this cross-functional team. What we seek are ideas for new business models that are relevant in the short, medium or long term. Only then can we secure entrepreneurial success going forward.

What is InnoVenture's mission? And what are its goals?

Michael Spall: TRILUX should in future focus on energy-saving, intelligent and networking light. LiveLink offers the lever and platform for the TRILUX Group's digital future. We advance innovations in technology and distribution as pilot projects and on the



Photos: TRILUX



Mark Henrik Körner (left) and Michael Spall (right) work together in InnoVenture team of new digital business models.

basis of the insights gained establish the market opportunities for technologies and business models. Today, TRILUX is already not just a maker of high-grade products, but rather a systems provider with ever greater digital expertise.

What tasks does the team perform within Trilux?

Mark Henrik Körner: InnoVenture initiates new digital business models and prepares the implementation. In the short term, initial digital “lighthouse projects” will be realised for clients. Once these are established and ready for the market they will be handed over to the respective local organisation.

What projects or the like has InnoVenture already launched?

Michael Spall: Initial projects are in the planning/realisation phase, such as DokFast, a logistics hall in the Netherlands, and for various stores of a large German corporation where the

technology can be remote-controlled. We’re planning a specimen heat map for an international shopping-mall operator, where the data transmission is controlled by the luminaires. In general, intelligent systems with superior sensors and highly efficient luminaires offer a wide array of ways of using light and, as data generators, form the basis for innovative business models and services.



Photo: Oliver Fantitsch

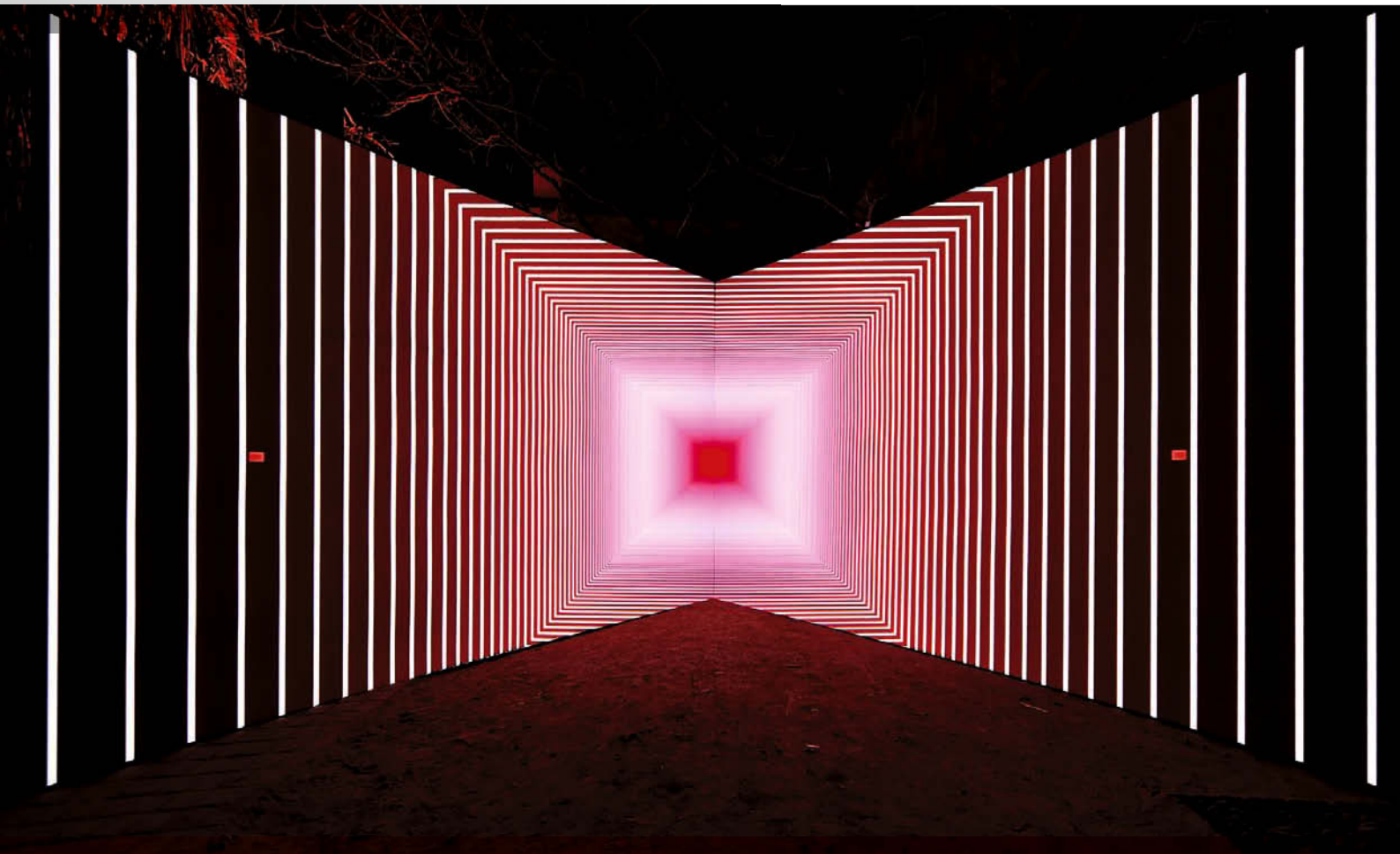
Photo: Olivier Ratsi [ANTVJ, FR]

MUSIC HANGOUT

Since the Klubhaus opened, Hamburg's music scene has had a new meeting point on the Reeperbahn. Its media façade is custom-programmable and can be seen from a distance.

As of the planning phase, akyol kamps:bbp architekten collaborated closely with Bremen-based media art and installation specialists Urbanscreen to achieve an organic combination of architectural structure and presence in the urban context when implementing Klubhaus St. Pauli. When it came up with the concept for the approximately 700m² media façade, Urbanscreen took its cue from the idea of "Lumentecture" which seeks to combine state-of-the-art lighting and control technology with an artistic approach to design. The result is an urban display over six stories in height whose content is destined not only to grab the eye but to be interactively controlled and changed by pedestrians and visitors. Moreover, the upwards and downwards movements of the elevator on the outside of the building activate various video scenarios. Something fundamental to the façade's design concept: its core visuals, whose content was coordinated to fit in exactly with its size and the raster, thus acting as a media-based extension of the architecture itself and reaching out as such into the city.

www.klubhaus-sanktpauli.de



ONION LOOK

Looking at the outside only ostensibly reveals reality. It is the light art that first enables us to see and experience the layers hidden beneath the surface in the installation “Onion Skin” by Olivier Ratsi.

In combination with the installation “Delta”, “Onion Skin” forms the basis of Oliver Ratsi’s “Echolyse” project, which uses art to highlight the basic mechanisms at the heart of spatial perception. When realizing his ideas, Ratsi, whose works using the mediums of light and media art always attempt to address the above-mentioned theme, relies on a wide range of different media and geometric structures which disturb or expand the spatial impact of their architectural environment in a broad variety of ways. Ratsi’s artistic strategy is based on the notion that an infinite quantity of different realities coexist within any given space and that our everyday perception only represents the outermost layer of these possibilities. Ratsi derived the inspiration for his work from the painting technique known as anamorphosis – a process whereby a pictorial element is removed from its normal context by means of alienation, meaning that it can only be properly understood by the person looking at it when it is viewed from an alternative angle, thus referencing the subjectivity and multifaceted quality of human perception.

www.ratsi.com



WEB ART

During the Detroit Design Festival the team at George King Architects utilized 5,000 metres of fluorescent yarn to transform a railway viaduct into a grotto sporting a shimmering bluish tone.

For Detroit, coping with the structural transformation from an industrialized into a service society represents the greatest challenge in the city's history. However, in parallel with the processes of physical contraction and consolidation that has been in evidence for a number of years now, space has started to become available everywhere for creatives. In contrast to the currently prevailing mood, this means that the notion of a more hopeful future for what used once to be "Motor City" now seem a real possibility. With, "Lasermaze", their contribution to the festival, London-based George King Architects illustrated the revitalization of a development area along an abandoned railway line connecting northeast Detroit with the city's central business district, by means of a walkable structure. By using two diametrically opposed materials, a dark, heavy steel frame as its supporting structure, and a light, luminescent yarn as bracing, the installation investigates the complicated relationship between the past and the future. And this in turn can provide an opportunity to repackage this structural transformation and presenting it as a success story.

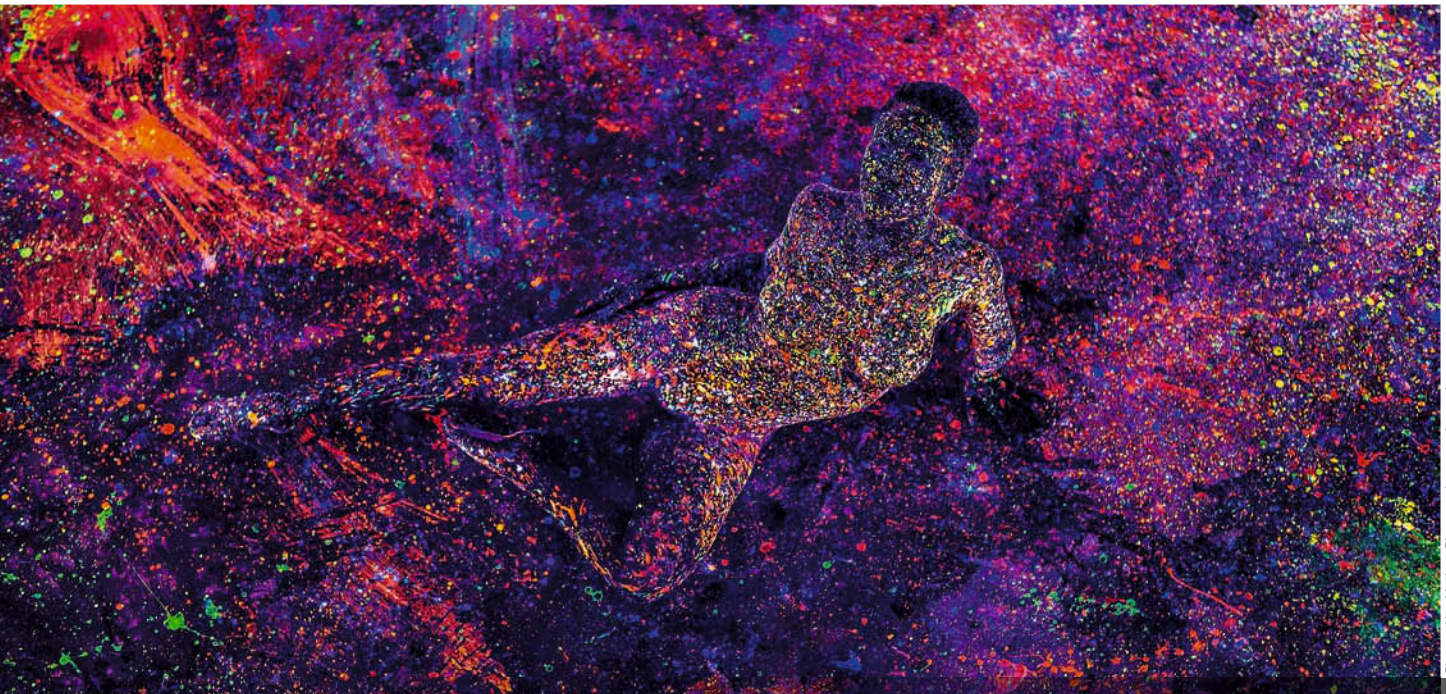
www.georgekingarchitects.com



LODESTAR

To mark the awards ceremony for the 2015 Nobel Prize, an installation by artist Olafur Eliasson hovered over the city of Stockholm as a symbol of the inspirational power of social and scientific progress.

In December 2015 “Your Star” appeared in the skies over Stockholm, a symbol of the inspirational power that emanates from the prizes bestowed there each year. For a whole week, a tethered balloon flew over the city at nightfall, starting out from a pontoon. The Icelandic artist and his team used a metal construction to connect a high-luminosity LED to the balloon. The power supply for the light source was derived from a battery integrated into the system. The cells for its rechargeable batteries had been charged long before, in fact as much as six months earlier, during the summer months when sun is available in abundance. This meant that – in a direct analogy with the stars in the night sky – “Your Star” was capable of lighting up the present by means of light derived from the past while also focusing symbolically on a new way of looking at things. To Eliasson’s way of thinking, the installation is not only indicative of the Royal Swedish Academy of Sciences’ aspiration to build a future filled with hope on the outstanding achievements of the past, it also communicates to every one of us the message that we should work towards our dreams actually becoming reality. www.olafureliasson.net



Photos: Alex Markow Photography, www.alexmarkow.com

COLOUR POWER

This combination of neon colours and black light conjures up memories of the 1970s, hippies and disco. However, as this collaboration between photographer Alex Markow and artist Magnus Sodamin shows, these ingredients can also be fruitful in contemporary art. Their "Lost in Infinity Split" performance project represents an assault on our customary ways of looking, one that is rough but not entirely serious. Nonetheless, in view of the concerted impact of its colours afterwards we need to readjust our eyes. Markow's series of photographs takes as its starting point Sodamin's installation "Lost in Infinity Split", its powerful 1,000 square meters of colour forming the background to the painted models. With this combination of surroundings and volumes, the foreground and the background fuse under the black-light lamp to produce a psychedelic composition where colour is one of the defining elements

www.magnussodamin.com

COLOUR ORGAN

Whenever light and video artists are asked who their role models are, the name of Thomas Wilfred tends to crop up. James Turrell, another of the international stars of the scene, was also influenced lastingly by Wilfred's lumia compositions. After all, as a boy Turrell often went to look at them at the Museum of Modern Art in New York. However, outside specialist circles there is hardly any information available on the life and work of this artist, who was born in Nestvaed, Denmark, in 1889 and

emigrated to the United States in 1916. Presumably this is because his works, colourful choreographies of light characterized by a sense of weightlessness and immateriality, seize us in the process of experiencing them personally in their specific situation. His objective was to unleash the artistic potential of coloured light and resulted in his invention, in 1921, of the "Clavilux", an organ-like apparatus which enabled him to fade projected lighting effects in and out by means of slide controls.

Photo: Thomas Wilfred Papers (MS 1375), Manuscripts and Archives, Yale University Library.



A version of the "Clavilux" was also produced for household use. Inside this portable cabinet, in which a backlit peep show and curved projection surfaces rendered an equally unique visual effect possible, a complicated automated system of reflective surfaces, panes of painted glass and curved metallic elements replaced the manual work on the part of the artist. Nevertheless, Wilfred himself made a not inconsiderable contribution to marginalising his own oeuvre. Throughout his life he refused per-

mission for his compositions to be filmed because he was convinced that their unique atmospheres would not be destroyed if they were not experienced both directly and personally. This meant that the art world tended to focus on his performances. And if, during his lifetime, his work was included in exhibitions at the most famous American museums, this very fact resulted in Wilfred and his lumia conceptual designs being rapidly consigned to oblivion subsequent to his death in 1968.

IMPRINT

Issued by

TRILUX GmbH + Co. KG
Heidestraße
D-59759 Arnsberg
www.trilux.eu

Editorial Staff

Vivian Hollmann (TRILUX)
Claudia Martin (TRILUX)
Thomas Kretzer (TRILUX)
Marina Schiemenz (GKT)
Monja Horrer (GKT)
Cornelia Krause (GKT)

Publisher

Gesellschaft für Knowhow-Transfer
in Architektur und Bauwesen mbH
Fasanenweg 18
D-70771 Leinfelden-Echterdingen
Publisher: Kristina Bacht
www.gkt-publishing.de

This magazine and all its contributions and pictures are protected by copyright. The publishers and editors accept no responsibility for unsolicited pictures and manuscripts. Colour and dimensional deviations correspond to the usual tolerances. Subject to colour and model changes. In charge of address data processing: the publisher.

Printed in Germany

Free subscription

Please send a short email including your postal address to: 3luxletters@trilux.de

Contacts for architects

Jan van Riel
Belgium
Phone +32 (0)15.293622
jan.vanriel@trilux.com

Sabine Madaus
North Germany
Phone +49 (0) 151.17 11 02 12
s.madaus@trilux.de

Martin Rohde
South Germany
Phone +49 (0) 151.17 11 02 72
m.rohde@trilux.de

Richard Holt
Great Britain
Phone +44 (0) 12 45.46 34 63
r.holt@trilux.co.uk

Chris Skinner
Great Britain
Phone +44 (0) 12 45.23 63 16
c.skinner@trilux.co.uk

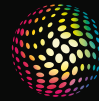
Roberta Riboldi
Italy
Phone +39 02 36 63 42 59
progettazione@trilux.it

Hetty Rümke-de Gier
The Netherlands
Phone +31 (0) 33.4 50 71 12
hetty.ruemke@trilux.nl

Harry Schulenburg
Switzerland
Phone +41 (0) 56 419 66 06
schulenburg@trilux.ch

Ana Cárdenas
Spain
Phone +34 (0) 902.46 22 00
acardenas@trilux.es

Pavel Boucek
Czech Republic
Phone +420 (0) 272.70 63 55
pavel.boucek@trilux.cz



TRILUX
SIMPLIFY YOUR LIGHT.

LIVELINK

WHEN INTELLIGENCE
COMES TO LIGHT

www.trilux.com/livelink

