

Unlock the extraordinary potential of light

Interview by | Michiel de Boer of Moesasji

With an installed base of over 29 million connected light points, Signify, the company formerly known as Philips Lighting, is at the forefront of the lighting market transformation where connectivity and AI bring unprecedented possibilities. The company has carried the name Signify since May this year, underlining its ambitions to improve life on our planet.

So where are they now? And where are they heading? A brief interview with Greg Nelson, Head of Research and Ronald Maandonks, Global Head of Public and Private Partnerships at Signify.

Why the name?

Greg Nelson: “We separated from Philips Electronics a little bit more than two years ago now. We had our IPO (Initial Public Offering) and became an independent company and so we saw the naming as a unique opportunity to give the company direction. We believe we have found a name that resonates well with people and suits the proposition we have as a company. Signify is an active name, a verb, and all about giving meaning. In our vision, light is becoming an intelligent language

that is increasingly connecting and conveying meaning. Light is a medium and a tremendous actuator for both humans and plants. And by connecting lighting to sensing and machine learning, we can do totally new things.”



Signify is the company name. The products, systems and services of Signify are brought to the market under various brand names, including: Philips, Interact, Modular, and Luceplan.

Towards Intelligent Lighting

Over the past two decades, the lighting market has transformed drastically. We are leaving the era of the conventional light bulb behind us. The emergence of LED lighting has opened new opportunities, but this market is rapidly maturing with LED performance and costs stabilizing. Connected lighting is fueling a third wave as a platform for the Internet of Things (IoT) and enabling applications beyond simply illumination. Manufacturers and designers are now exploring the possibilities of lighting connected to the web (Internet of Things). And with extra capabilities such as remote control, connecting to sensing nodes and data steered lighting, things become really interesting. The newest wave is here: Intelligent Lighting.

Greg Nelson: “We are active in every wave. As the global leader in lighting, we keep on investing in developing luminaires, lamps, drivers etc. If we don’t, we will not be able to maintain



Greg Nelson

our position. So, we keep on bringing attractive lighting products to the market. Products for domestic and commercial use that show similarities to conventional lighting products, but also increasingly differentiated products offering e.g. new spectral and spatial distributions and even dynamics.

The next field we are looking into is connected lighting. Lighting is a fantastic platform to host the IoT (Internet of Things). You already have the power, the connectivity and a place in the ceiling. In other words, a window on the world

from the vantage point of a lighting system. With sensing and connectivity, we can do many things. For example, we can create various lighting schemes and ambiances. But this also opens a field we call ‘Beyond Lighting’.

‘By connecting lighting to sensing and machine learning, we can do totally new things’

A good example of a product in this field is our first commercially available

LiFi product in which we turn a luminaire into a data connection point (see text box).

Next to ‘broadcasting via light’, we can use all kinds of built-in sensors to collect various data. We can use this type of sensing for optimizing space management in buildings or for environmental monitoring. Applications are starting to converge and we see the potential to use this sensing data in new ways, offering services that add value. In short our mission is: ‘to unlock the extraordinary potential of light for brighter lives and a better world’.”



Ronald Maandonks

LiFi - photonics in practice

Ronald Maandonks: “LiFi offers two-way, high-speed wireless communication similar to WiFi. However, instead of using radio signals, it uses light waves to transmit data. Our LiFi-enabled office lighting fixtures have a broadband connection speed of 30 Mb per second without compromising lighting quality. This is sufficient to simultaneously stream several HD quality videos while holding a video call.

LiFi offers several benefits over WiFi as it can be used in places where radio frequencies may interfere with equipment, such as in hospitals, or where WiFi signals cannot reach or are weak, such as underground. Other applications include environments demanding high security; for example, the back office of a financial institution or government service. LiFi adds an extra layer of security as light cannot pass through solid walls and a line-of-sight to the light is needed to access the network.”

Journey

Today there is rich palette of spectral choices available to trigger the human body and mind. This can be combined with sensing data, but it is a challenge to translate all these possibilities into attractive lighting applications. Greg Nelson: “Unlocking the potential of light is a fascinating journey. One of the things we have to start to understand is the context of the space we are dealing with. How many people are in the room? Are they communicating, working, relaxing? What is the activity level? Can we even understand the tone

of the conversation? If we really want to trigger humans with light and to facilitate them with the right environments, we have to drive that in an intelligent way. You cannot provide each and every room with a lighting technician and a control panel. Much of what we want to achieve, we have to manage autonomously. That brings Artificial Intelligence onboard. Lighting systems can detect certain users and the usage of a space and respond to this with a proper lighting scheme. Yet, we also want people to be able to interact with that. It is no longer ‘On, Off, or Dimming’ a light bulb hanging from the ceiling; we have to find new ways of interacting with lighting scenarios. That will be a learning journey. Right now, we are only at the tip of what we can do.”

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Next to lighting applications for people, Signify is also active in exploring and realizing lighting applications for plants. Studies and experiments have made it clear that the appropriate lighting has a tremendous impact on crops and plants in terms of growing speed and in the generation of nutritional value. Greg Nelson: “It is a challenge to use all these experiences and data as a springboard and create comprehensive

and intelligent lighting products with it. Our role is expanding from being a lamps and luminaire manufacturer to an intelligent generator and consumer of (big) data. On top of that we are an application builder. We will definitely play a role in this area, but not alone. That’s why we created Interact, our IoT platform in which we collect and unlock data and insights of connected lighting systems. Value adding partners can then build attractive, cost-effective and sustainable lighting applications based on the knowledge and technology in Interact, providing new value to consumers.”

Validating concepts

Ronald Maandonks: “Of course a lot of what we do is pioneering in lighting technology and application. We have different working methods and teams in place for the development and validation of principles and prototypes. In this area, partnerships are more and more important to us. We are increasingly piloting with customers to monitor and collect user-feedback. In a large office building nearby our office at the High Tech Campus Eindhoven, we have installed a lighting system that we are currently monitoring for its influence on the productivity and comfort of the employees. And the new Atlas building at TU/e has been completely equipped with a connected

lighting system that is an important testbed for all kinds of value proposition testing. Next to these pilots with customers, we are working together with various academic partners such as ILLI, MIT and many other universities. ILLI at TU/e is a core partner for us. We started our collaborative journey a couple of years ago and we now work closely together. I think, ILLI is the only dedicated research institute on lighting technology worldwide, looking into both the fundamentals of lighting technology as well as the psychological effects of light. Knowledge that is of the utmost importance to us. In the coming year, we will sharpen our mutual roadmaps. Together we will also share the quest to find new talent. As our story shows, lighting design and production nowadays requires knowledge from, or at least affinity with, a broad set of disciplines: human (but also plant) behavior, sensing, connectivity, Big Data. We need people that can see and think outside the box.” Greg Nelson adds: “This links to another area of research for us, which is the effective digitalization of our processes. For example, the digital tooling we use for designing luminaires, lamps and components. The next generations of our products will all be connected, part of larger ecosystems, and open for operation with different applications. Going forward, the way in which we design our products will be different.”