



# The Connected LED Lighting Revolution

**Harry Verhaar, Head of Global Public & Government Affairs, Signify**  
Innovation X-Change, Sydney, 8 April 2018

# Signify is the world leader in lighting

We provide high-quality energy efficient lighting products, systems and services

## Light sources



## Luminaires



## Systems and Services



**No. 1**

Conventional.  
LED, Connected

**€6.4bn**

sales in 2018,  
~ 75% professional

**29,000**

people in 70 countries

**No. 1**

Industry leader  
Dow Jones  
Sustainability Index

# Street lights at the crossroads

The technologically mature street lighting business is about to get a shot in the arm with new lamps and control gear, as James Hooker reveals

Street lighting is a vital part of the urban landscape. It is not only a means of providing safety, but also a means of providing a pleasant environment. The technology of street lighting has advanced significantly in recent years, with the introduction of energy-efficient lamps and intelligent control systems.



Energy-efficient lamps, such as compact fluorescent lamps (CFLs) and light-emitting diodes (LEDs), offer significant energy savings compared to traditional incandescent lamps. Intelligent control systems, such as photocells and motion sensors, can further reduce energy consumption by only lighting the street when needed.



# White light can be green too

Since the 1960s in the case of new street lighting, the industry has been dominated by high-pressure sodium lamps. These provide a yellow light, but at high running costs due to their low energy efficiency.



Now, white light streetlights are being introduced. These provide a whiter light, which is more pleasant and also more energy-efficient. The technology for these lamps is based on compact fluorescent lamps (CFLs) and LEDs.

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# 75% of office lighting fails EU quality tests

More than three quarters of Europe's office lighting is found to be non-compliant with energy efficiency requirements. A study by Philips has revealed that 75% of office lighting systems tested in 11 European countries failed to meet the EU quality standards for energy efficiency. The study found that many office lighting systems are outdated and inefficient, leading to unnecessary energy consumption and higher costs for businesses.

# Large cost and energy savings could be made by updating lighting systems

Updating office lighting systems can lead to significant energy savings and cost reductions. A study by Philips found that 75% of office lighting systems tested in 11 European countries failed to meet the EU quality standards for energy efficiency. The study found that many office lighting systems are outdated and inefficient, leading to unnecessary energy consumption and higher costs for businesses.

# Philips apuesta por la mejora de la eficiencia energética en los sistemas de alumbrado público en Europa

Philips is committed to improving the energy efficiency of public lighting systems in Europe. The company has developed advanced lighting solutions that combine energy-efficient lamps with intelligent control systems. These solutions can reduce energy consumption and extend the lifespan of streetlights, leading to significant cost savings for municipalities.

# News » World » Life in Italy

# EU pushes for energy-saving light bulbs

Paris 1400 ago | Comment | Recommended

**THE EU PLAN**  
EU leaders set new targets Friday to cut

**BRUSSELS (AP)** — The other parts of the world by pushing for an increased European leaders agree

Wer Glühbirne gegen Energiesparlampe tauscht, leistet einen effizienten Beitrag zum Umweltschutz!

Die Verringerung des Stromverbrauchs zählt nach wie vor zu den einfachsten Möglichkeiten, einen effizienten Beitrag zu Umweltschutz und Senkung des CO<sub>2</sub>-Ausstoßes zu leisten.

Ah völlig unkomplizierte Maßnahme, ohne jegliche Einbuße von Lebensqualität, ersetzt sich dabei der Austausch von Glühbirnen gegen Energiesparlampen: Denn diese benötigen bis zu 80% (!) weniger Strom, während normale Birnen nur 5% der verbrauchten Energie in Licht umsetzen und die restlichen 95% einfach als Wärme verpuffen.

STOP CO<sub>2</sub>  
Schützen wir unser Klima!  
Kronen Zeitung

IS IT TIME TO BAN THE BULB?

Concerns about energy resources and global warming spur government intervention to phase out general service incandescent lamps

IN LATE JANUARY, a member of the California legislature proposed a ban on the sale of general service incandescent lamps. By mid-March, countries representing more than 430 million people, or roughly one out of 10 people on the planet with access to electric lighting, are out of today's general service incandescent lamps. Others are considering a phase-out effort to reduce global warming.

CHANGE BULBS  
Lighting gobble up 20 percent of the world's electricity, or the equivalent of roughly 900,000 tons of coal a day. Thirty percent of that power is delivered by incandescent light bulbs—a 19th-century technology that wastes most of the power it consumes in unwanted heat.



Coed building, 30 St Mary Ave, in the City of London, also known as 'The Clerk', uses half the power that a smaller sized lower would consume. It is designed to maximize daylight penetration, reducing the time that artificial light is required. Light level and movement sensors prevent unnecessary lighting, reducing energy consumption and cooling loads.

# A winning strategy to cut CO<sub>2</sub>

BUILDINGS account for 30% of EU CO<sub>2</sub> emissions. Thanks in part to the inefficient heating, air conditioning and lighting systems used in the sector, the building industry is a major source of greenhouse gas emissions. Upgrading lighting systems with the latest state-of-the-art and energy efficient technology is a key strategy to reduce CO<sub>2</sub> emissions. Philips is leading the way in this effort, offering energy-efficient lighting solutions that can significantly reduce energy consumption and CO<sub>2</sub> emissions in buildings.



# 75% del alumbrado de oficinas malgasta energía

El 75% del alumbrado de oficinas en Europa no cumple con los estándares de eficiencia energética de la UE. Esto significa que se está desperdiciando una gran cantidad de energía y recursos. Philips ofrece soluciones de iluminación que pueden reducir el consumo de energía y las emisiones de CO<sub>2</sub> en un 75%.

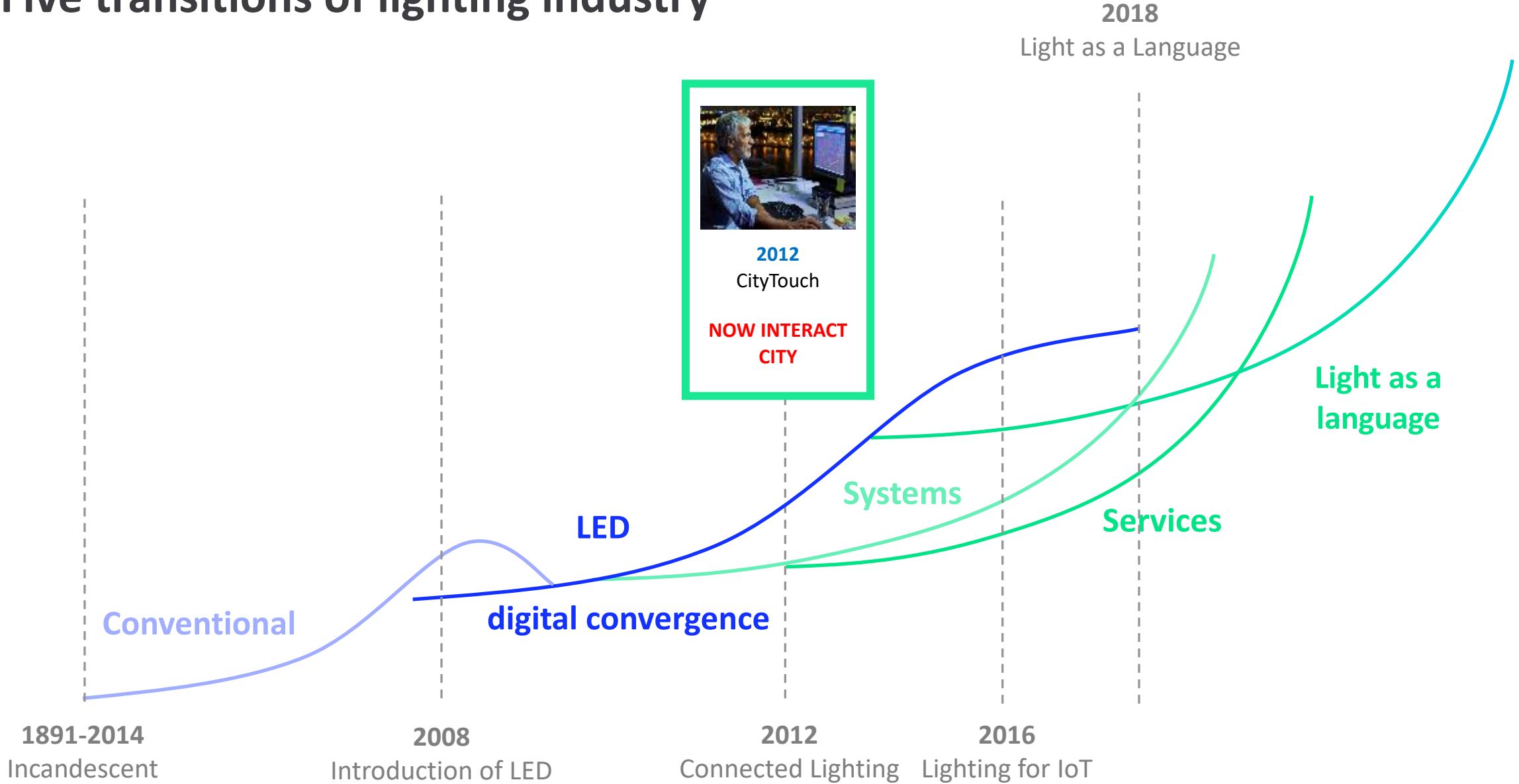
Davos Special Report

More demand than all the alternative fuel sources combined," says Paul Wicks, an efficiency expert at the IEA.

Efficiency is also a great way to lower carbon emissions and help slow global warming. But the best opportunity for efficiency in the coal, gas, and oil sectors is in the power sector. This is because generating energy demand requires less energy to generate in the first place, not to mention the waste of using energy twice. In the IEA's scenario, power is expected to account for 40% of global energy demand by 2030.

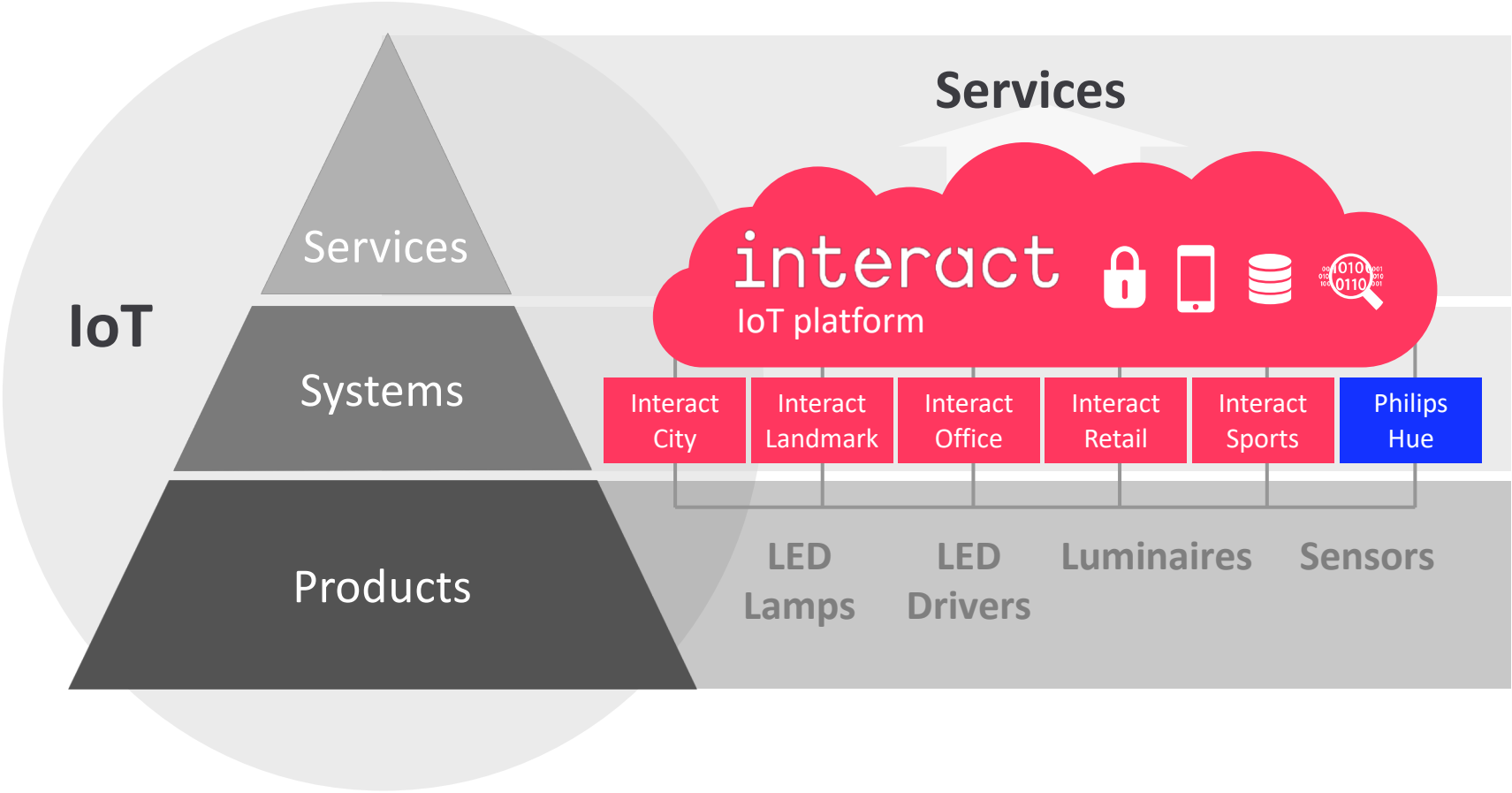
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# Five transitions of lighting industry



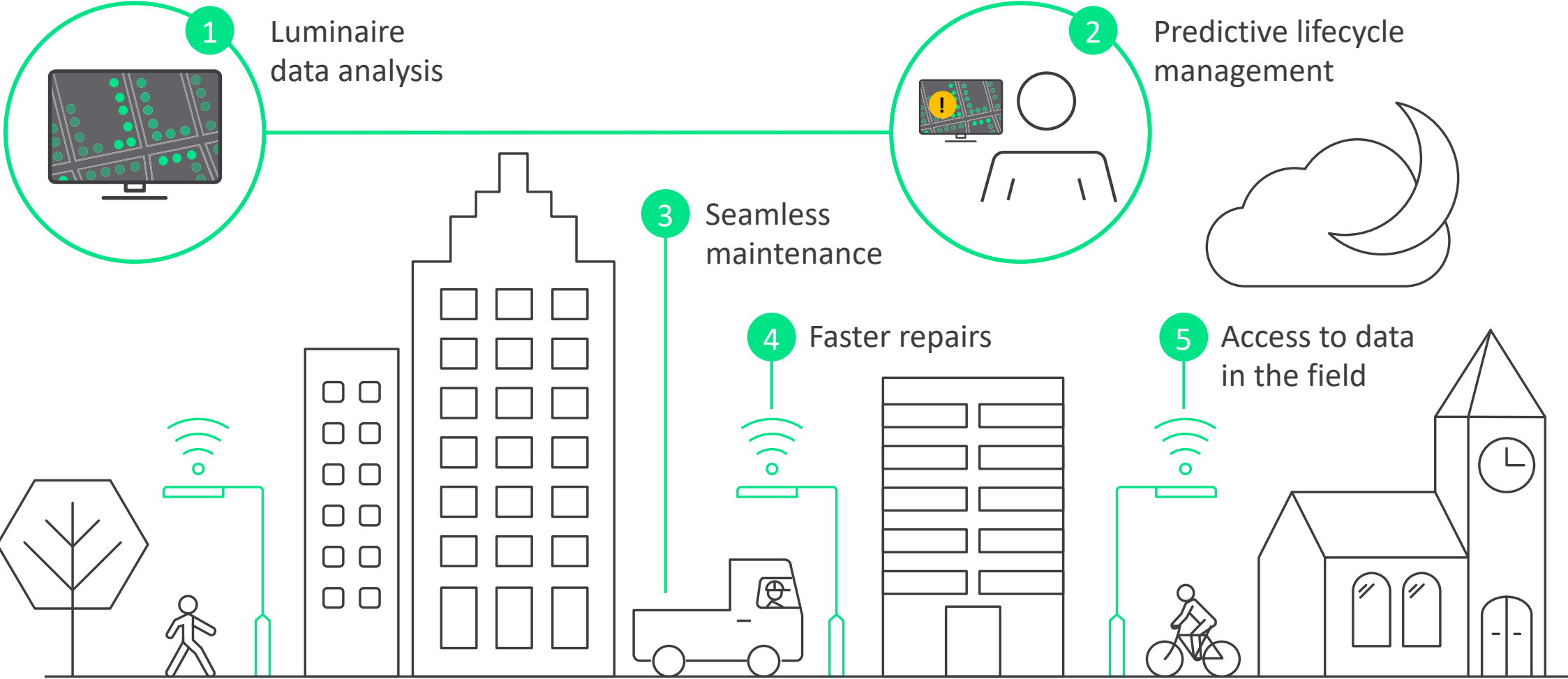
# Open data exchange

Interact IoT platform



# Interact city – operational benefits

## Connect and workflow app



# The bigger Paradigm shift

## Capitalism, Communism, Socialism => Sustainalism

**COP23 CLIMATE CHANGE**  
THE NEW ECONOMY

**The age of sustainalism**

THE UNITED NATIONS CLIMATE CHANGE CONFERENCE – COP23 & CMP13  
BONN, GERMANY  
6-17 NOVEMBER 2017

CC BY SA GREEN AWARDS SUSTAINABILITY & INNOVATION United Nations Climate Change

018 | INDUSTRY INTRODUCTION

## THE AGE OF SUSTAINALISM: THE NEW SOCIO-ECONOMIC GROWTH MODEL FOR AN INCLUSIVE 21<sup>ST</sup> CENTURY

HARRY VERHAAR, HEAD OF GLOBAL PUBLIC & GOVERNMENT AFFAIRS, PHILIPS LIGHTING

**PHILIPS**

“ADOPTING LED IN PLACE OF INCANDESCENT LIGHTING WOULD REDUCE ENERGY CONSUMPTION BY A MASSIVE 53 PER CENT AND CO<sub>2</sub> EMISSIONS BY 1,400 MEGATONS BY 2030.”

**I**t is becoming ever more clear that the major global trends which are having the greatest impact on the world around us are not only increasingly intertwined, but are also becoming broader in their impact, affecting a greater number of regions and citizens.

Global hunger is on the increase, for the first time in over a decade. According to the annual United Nations report on world food security and nutrition, this increase is primarily due to climate-related shocks and the growth in the number of violent conflicts. The report also points to concern at the number of overweight children and obese adults, with changes in dietary habits and economic slowdowns cited as some of the drivers of these trends. The authors of the report state that the world will not end hunger and all forms of malnutrition by 2030 unless we address all the factors that undermine food security and nutrition. Securing peaceful and inclusive societies is a necessary condition to that end.

The impact of climate change has thus far been most keenly felt by the citizens in the developing world.

However, this year's intense and destructive hurricanes, which tore through the Caribbean and then hit the southern USA, suggest that even the wealthiest country on the planet is not immune to the consequences of a changing climate.

It should be clear that we cannot continue to look at the challenges facing the world in isolation. It may be comforting to do so, as focusing on a single issue can provide for greater clarity and easier communication. But this approach has the danger of simply storing up trouble for future generations.

Our focus on measuring global success through GDP growth has trapped us in a linear view of society – focused on extracting, consuming and emitting resources from energy to water, materials and food. We need to become much smarter, more resource-efficient and change from a linear approach to a circular society, in which a long-term quality of life becomes the most important metric. This would ensure that while economic competitiveness remains important, our society would have at its core the health and well-being of all our citizens.

“IT IS VITAL THAT DEVELOPING COUNTRIES DO NOT FOLLOW THE SAME DESTRUCTIVE PHASES THAT THE RICHER NATIONS OF THE WORLD HAVE BEEN THROUGH.”

Above: LED-lit Dragon Bridge in Da Nang

By adding a focus on social equity and inclusiveness, we can enter an age where the socio-economic model becomes about Sustainalism, building on the foundations laid by capitalism and socialism, but taking the broader view which the challenges of today and tomorrow demand of us.



No-one is unaware of the need for our products and processes to become more energy efficient and yet, often due to a focus on the short term, there remains a reluctance to make the transitions required.

To arrive at a carbon neutral world by 2050, we need to drive overall energy efficiency improvements of at least 3 per cent per year. 'We' – industry, transport, public infrastructure, homes – must at least double the rate of energy efficiency improvement, primarily by accelerating infrastructure renovation to around 3 per cent per year. In parallel with this we also need to be moving to clean energy sources at a rate that also equates to 3 per cent of our energy mix per year.

Critically, the current rate of energy efficiency improvement hovers at around 1.5 per cent per year. At the same time, demand for energy continues to rise at about 3 per cent per year driven by population growth, increased prosperity and mobility. Simply doubling the rate of energy efficiency improvement would reduce global energy costs by more than US\$2 trillion by 2030, slash the average household energy bill by a third, and create more than six million jobs by the end of this decade.

There are two main elements required to double the rate of energy efficiency improvement. The first is accelerating the renovation of existing infrastructure in developed countries. Secondly, there needs to be a focus on helping developing countries leapfrog to clean technologies such as solar-LED and combine these with new business models. It is a sad fact that many of the countries which have suffered the most from climate change have been least responsible for creating it. It is vital that developing countries do not follow the same destructive phases that the richer nations of the world have been through.

When speaking about energy, we often talk about individual technologies and their potential in their respective silos. In reality, we must pursue them all. Energy efficiency, renewable energy and carbon engineering are all needed. Only by enacting all of them in unison will we be able to achieve the ultimate goal of carbon neutrality in the coming 40 to 50 years. The International Energy Agency projects that energy efficiency needs to do over half of this job. One could say that by combining energy efficiency and renewable energy we can decarbonise society twice as fast and twice as cost-effectively.

The fact is that many of the technologies we need already exist. All that is required is to take a longer-term view and use them.

LED lighting is a perfect example. LED street lighting uses at least 40 per cent less energy than conventional lighting and has been around for years, and yet we still cling to outdated and inefficient technology. >

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