



# Innovations in Lighting: The latest opportunities for Wholesalers

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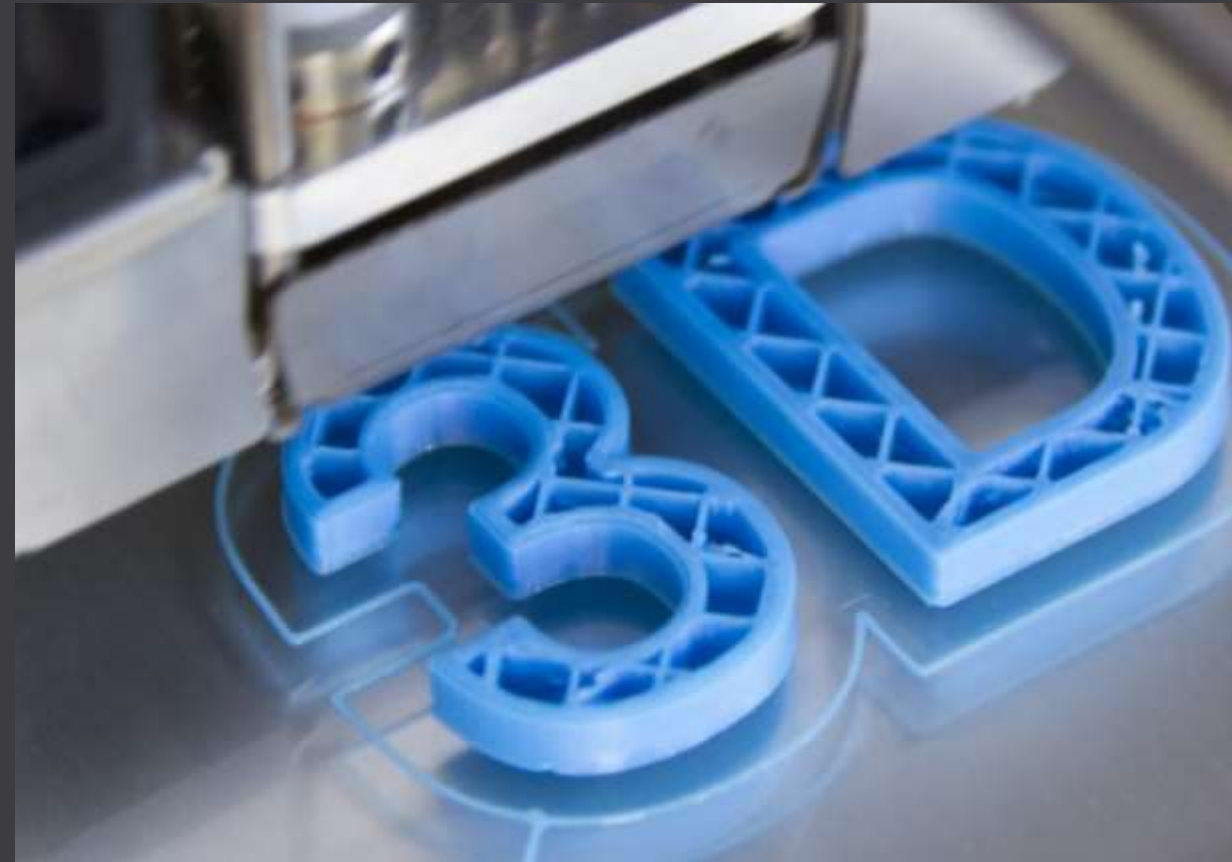


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# 3D Printed Lighting

# 3D Printed Technology

- History
- Applications
- Sustainability
- Lighting
- Solutions



# 3D Printed Technology

1945 – Short story “Things Pass By”

1971 – Liquid Metal Recorder

1974 – Concepts laid out in New Scientist

1980’s and 1990’s – Patents

Today – “The next big thing”



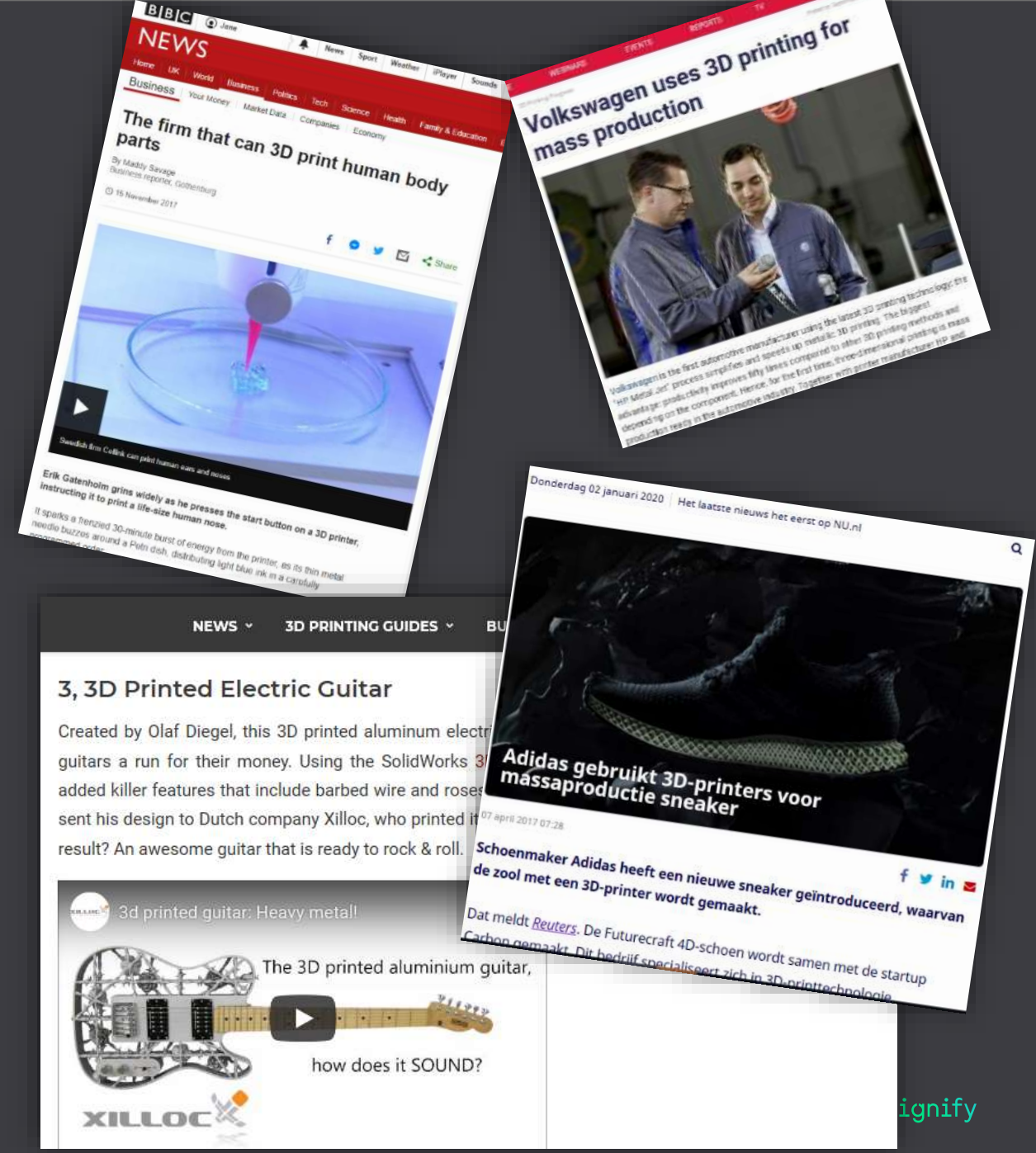
From niche to mainstream

Medical Applications

Transportation

Musical Instruments

Footwear



# Circular economy

## The lighting industry is accelerating the transition to a circular economy

We shift from a linear to a circular economy:

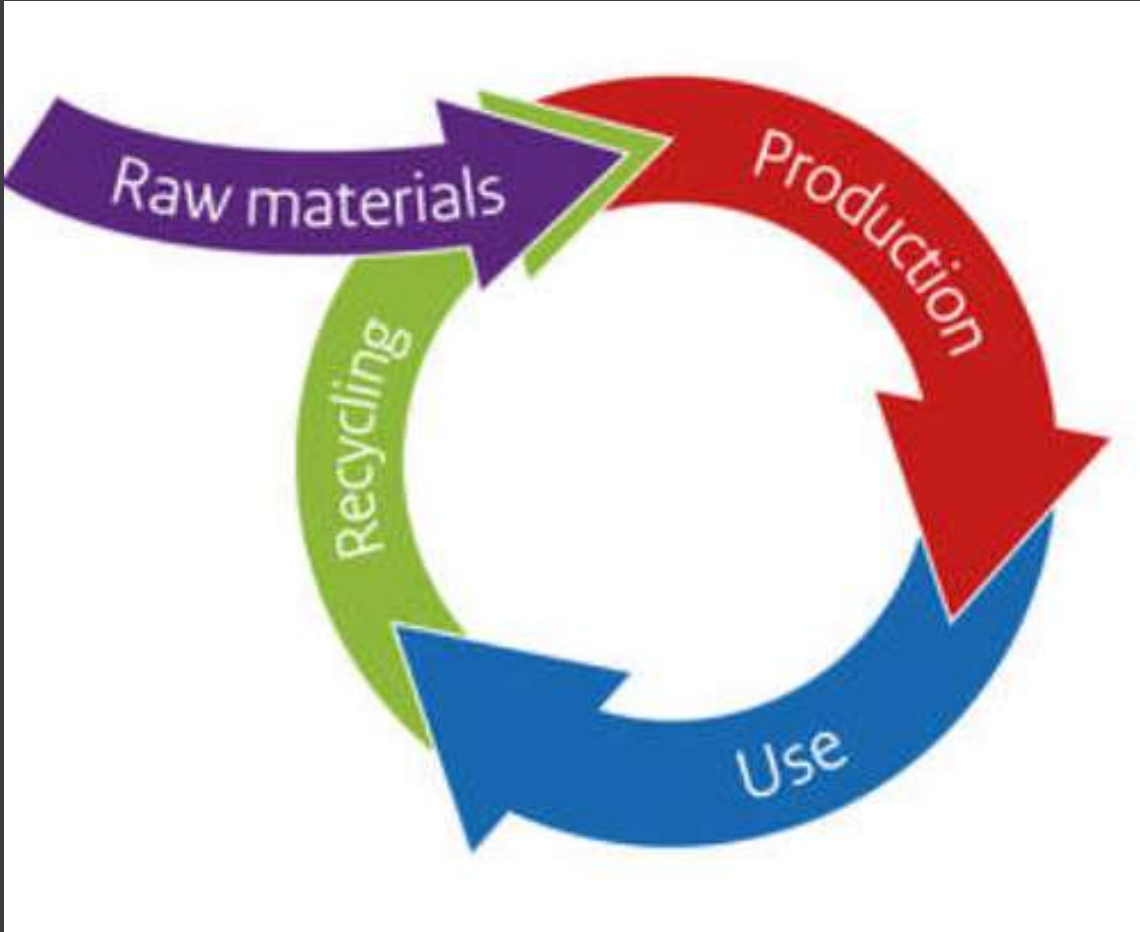
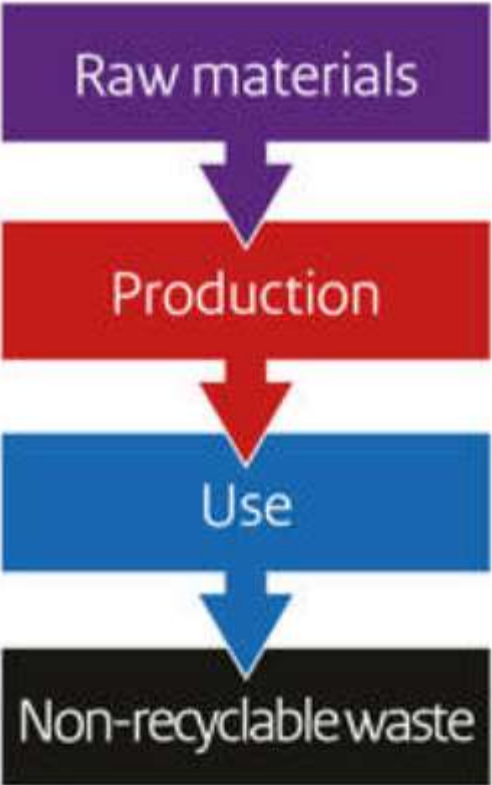
- Only 9% of our global economy is circular
- We consume 1.6X the resources our planet can sustain
- 1440 refuse trucks of plastic are dumped in ocean daily



12 RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION



# Linear to Circular





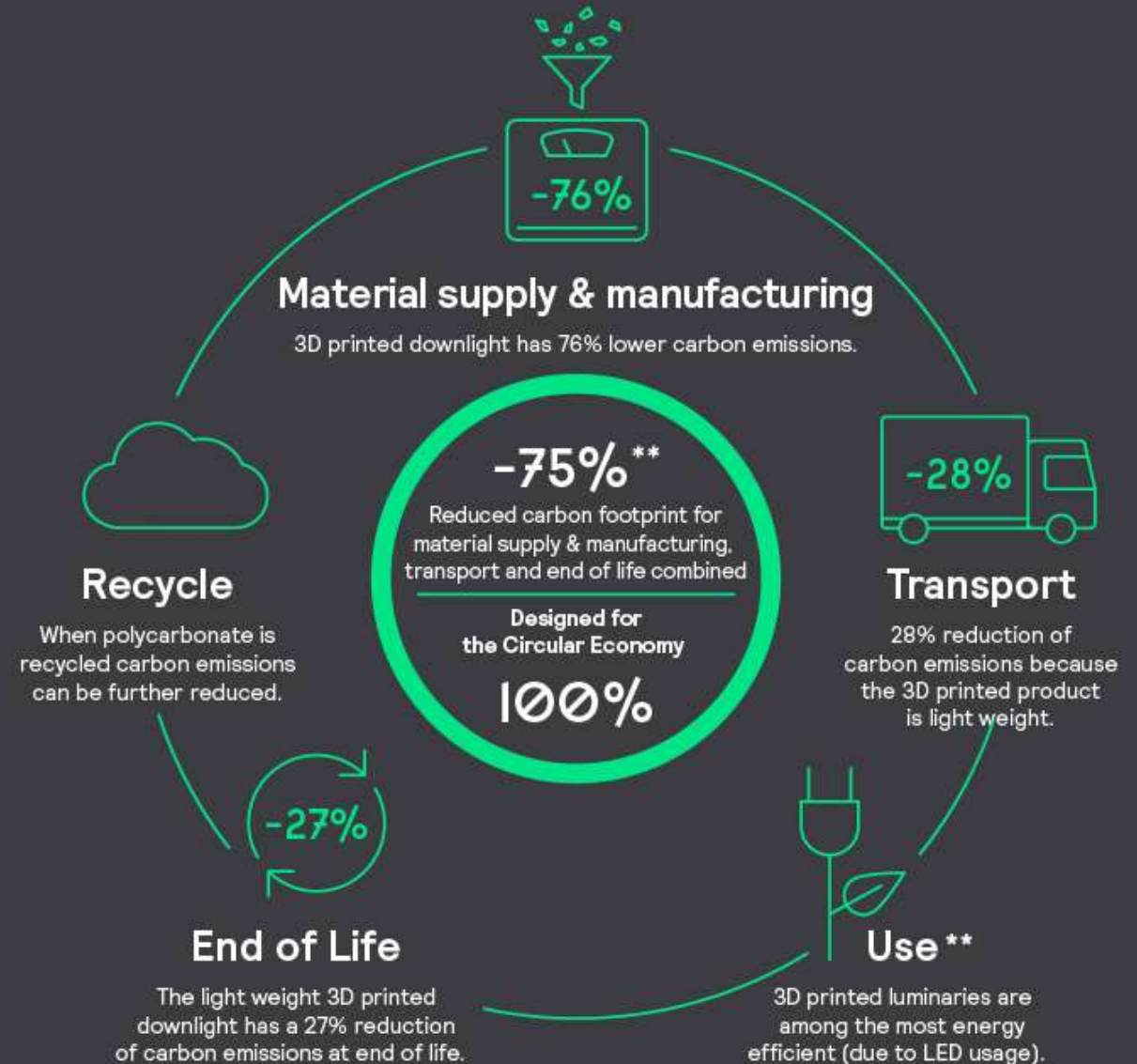
# Contribution of our 3D printed luminaires to your sustainability goals

Reduce carbon footprint\* / CO<sub>2</sub> emissions

3D printed luminaires are sustainable

by default & by design

- Material
- Production
- Transport
- Installation ease
- Use over lifetime
- Recyclability and less parts (e.g. 50% less parts compared to similar products)



Carbon savings are significant,  
yet product dependent



VS



**3D Printed**

**Metal**

**Material supply & manufacturing,  
transport, end of life (excl. use phase)**

**24% savings**

- Full product comparison, all parts included



VS



**3D Printed**

**Alu die cast**

**75% savings**

- Full product comparison, all parts included

# Flexibility & Easy Customisation | Tailored lighting

Shapes



Colours & Textures



Size



## Example Application Retail Store Lighting Sustainable & Perfect Fit

This customer wanted to make their contribution to a more sustainable world, they are carbon neutral but are taking the next steps to further reduce their carbon footprint:

They are getting closer, one 3D printed luminaire at a time!

The Semi-Recessed spots were fitted perfectly to the existing cut out to ensure a smooth and efficient installation process.



## 3D Printed Lighting...

Saves time, energy and waste during manufacturing, as well as packaging and transport.

Paves the way for more innovative designs, with different shapes and more complex colours.

Is designed with circularity in mind, being fully recyclable to help increase the circular economy globally from 9%

Encourages us all to be part of a changing world and take the next steps...





# Controls, Systems & Connected Lighting

# £6.5 billion

The world market for smart lighting and connected lighting controls.

And that value is forecast to grow to £19.4 billion by 2024 according to a new report from IMARC group.



# Why we use lighting controls



**E**

Energy



**A**

Adaptability



**R**

Regulations



**F**

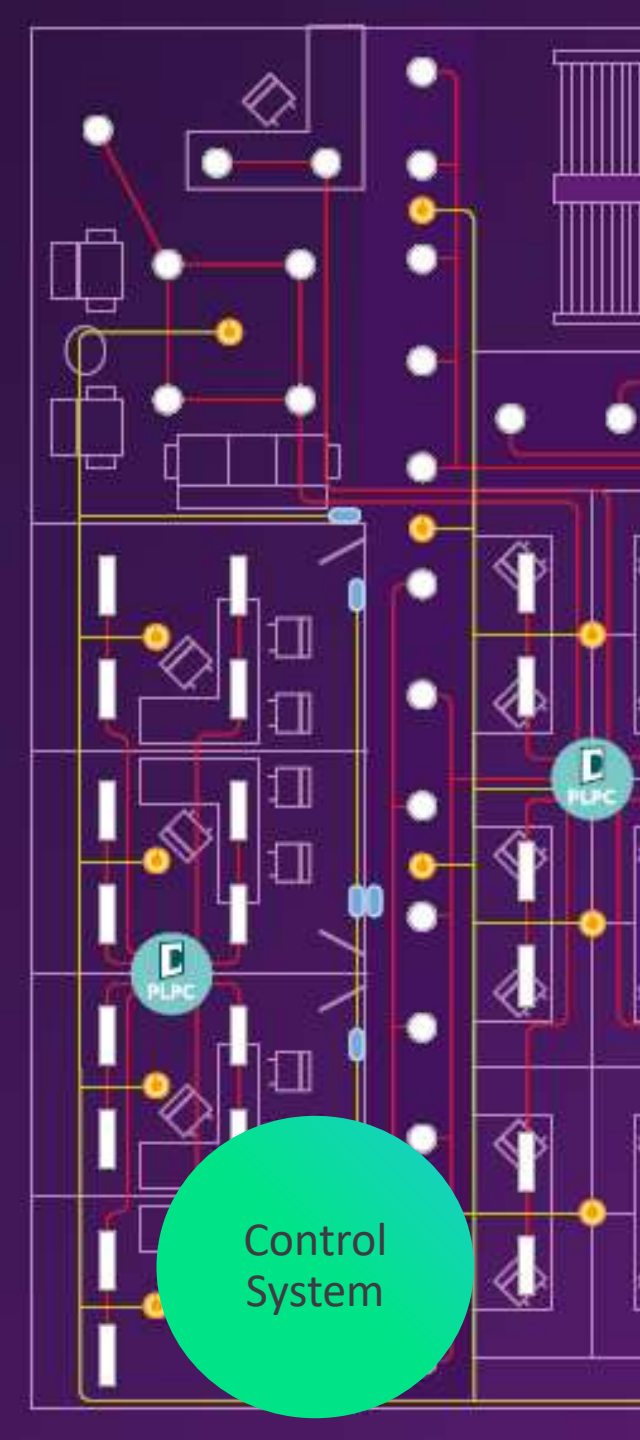
Financial



Luminaire



Input Device

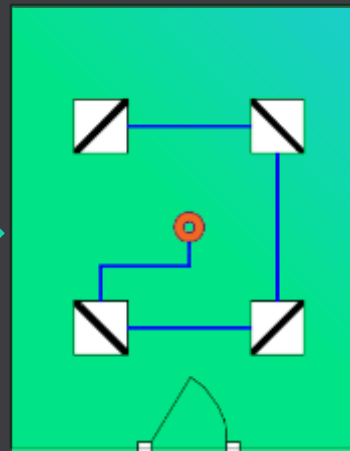


Control System

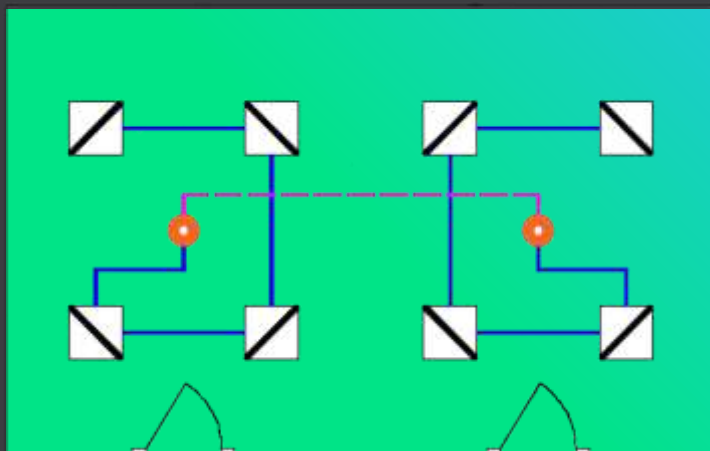


Control Network

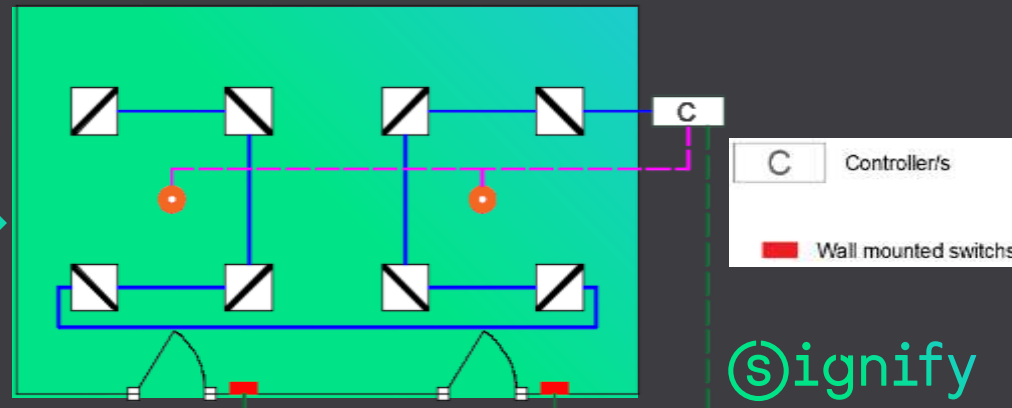
# Standalone



# Group



# Networked Control



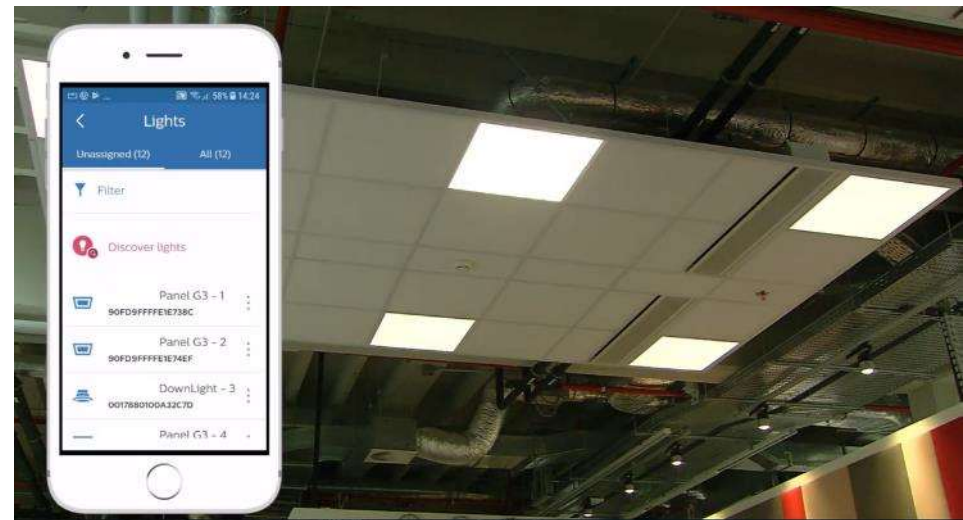
# Connected Lamps

- LED Tubes with on board Microwave sensors take
- Connect to each other
- LED connected lamps – can be wirelessly controlled by Apps, or wireless connected switches or PD detectors
- Easy to install – just replace the lamp
- Cost effective – minimal labor and capital cost



# Wireless Protocols

- Can be retrofitted into existing projects as there are limited to no infrastructure changes.
- Gateway not required for simple lighting controls network (except for Zigbee, which requires a Gateway)
- High level of analytics available with certain connected systems.



# Wired Protocols

- **DALI, DALI2** – Are control protocols used for controlling the luminaires directly. Provides a good level of control with simple wiring topology.
- **POE** – The user interfaces are POE however the POE routers will talk to one another through ethernet.
- **KNX** – Predominantly a building controls protocol but is more common in lighting in Europe and the far east.
- **BACnet** – The first protocol created to allow systems from different manufacturers to interoperate by creating a standard set of commands for all.



**Need commissioning engineers!**



**A good connected lighting control system should provide the following functions:**



**Lighting management**



**Lighting asset management**



**Energy optimization**

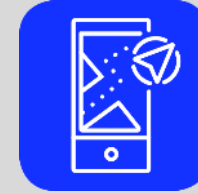


**Scene management**

**A great connected lighting control system can add further benefits beyond illumination:**



**Space management**



**Indoor navigation & Asset Tracking**

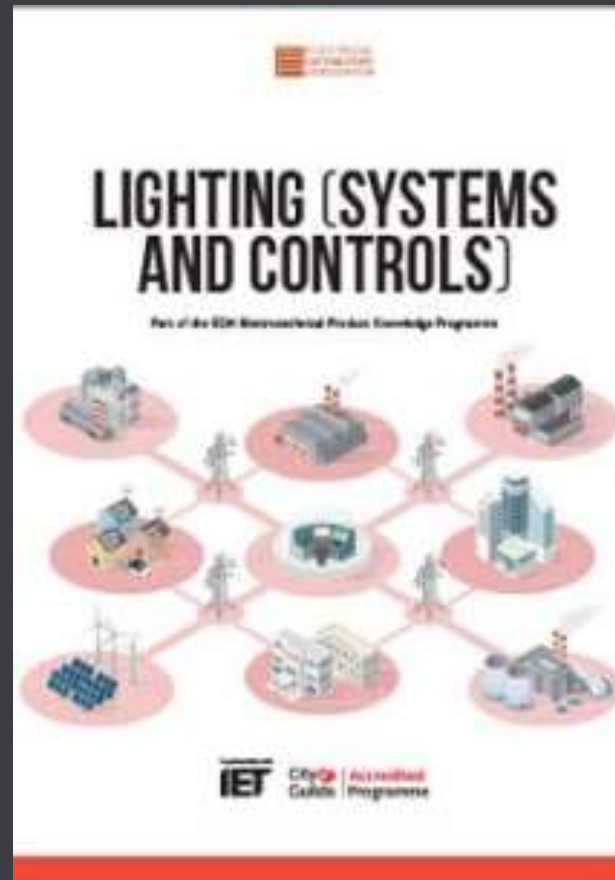


**Bio-adaptive lighting**



**Environmental monitoring**

# Your teams can learn more with the EDA Product Module on Lighting Controls!





# UV-C Lighting for Disinfection

proven technology for the new norm



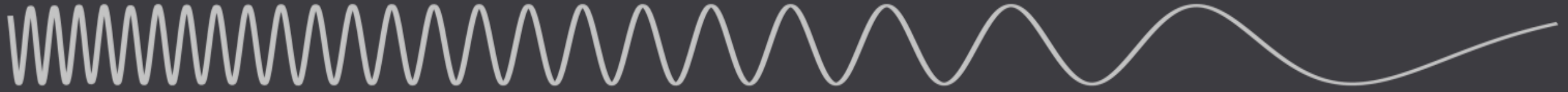
- 🦠 **What is UV-C Lighting?**
- 🦠 **Why is UV-C important in 2021?**
- 🦠 **How can UV-C be utilised?**



## Is UVGI a new solution?

- The germicidal effects of Ultraviolet light were **first discovered in 1877**.
- The **1903 Nobel Prize for Medicine** was awarded to Niels Finsen for his use of UV against tuberculosis of the skin.
- Using UV light for disinfection of drinking water dates to **1910 in Marseille, France**.
- Between **1937 to 1941** upper-room UVGI in suburban Philadelphia schools to prevent the spread of measles.
- So why is this important in 2021...

# What is UV-C?



## UV-C from 200 to 280 nm

- Completely absorbed by the ozone layer
- For disinfection purposes and germicidal application

## UV-B from 280 to 315 nm

- For medical use (e.g. phototherapy to treat skin conditions, including psoriasis)

## UV-A from 315 to 400 nm

- For use with curing, tanning and insect traps

# Ensuring UVGI is safe

- Overexposure to UV-C can cause a sunburn-like reaction to skin, and could damage the superficial tissue of the eye
- Like any disinfection system, UV-C lamps and devices must be used properly to be safe.
- UV-C lamps emit a blue hue to indicate they are switched on.
- The best safeguards utilise:
  - ✓ **quality products,**
  - ✓ **competent design**
  - ✓ **correct installation**
  - ✓ **commissioning & maintenance**
  - ✓ **end-user training**

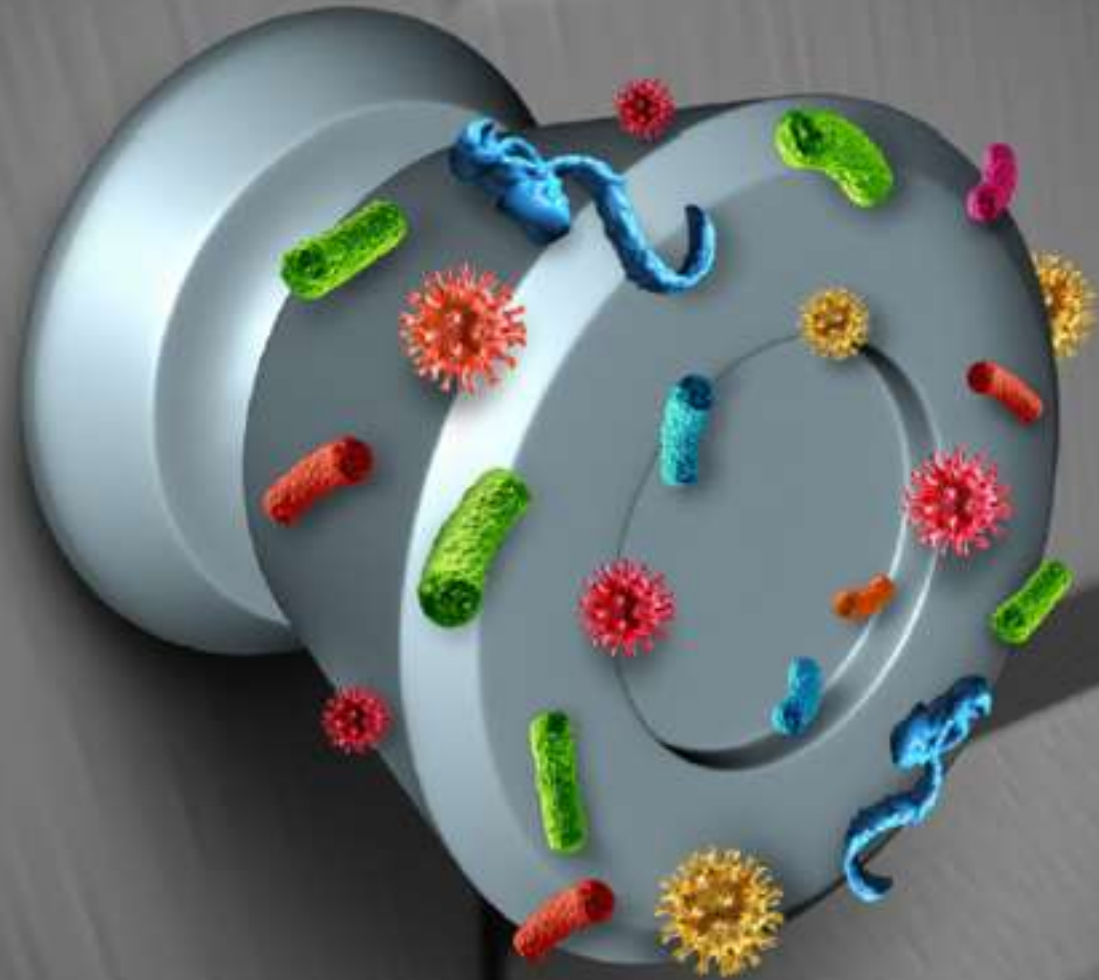


# 01

## Why is UV-C important?

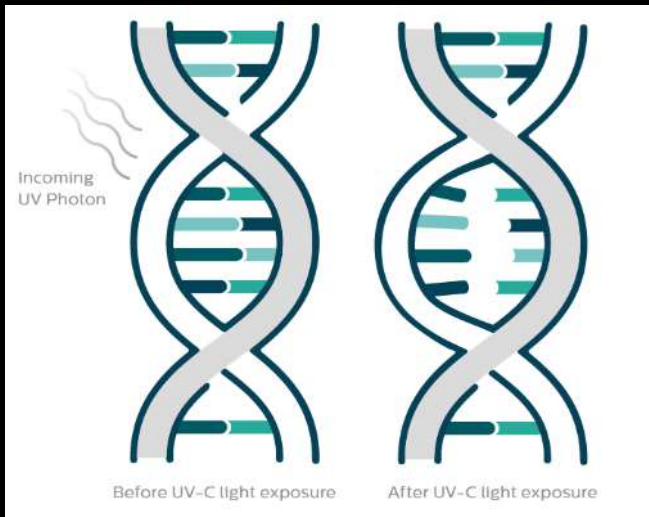
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Bacteria and viruses are present in the air we breathe, the water we drink, and just about every surface we touch...



**‘Our test results show that above a specific dose of UV-C radiation, viruses were completely inactivated: in a matter of seconds, we could no longer detect any virus.’**

**Dr. Anthony Griffiths, Associate Professor of Microbiology at Boston University School of Medicine**



- All bacteria and viruses tested to date respond to UV-C disinfection for example:
- Covid 19
- Influenzer
- Salmonella
- Canine Parvovirus
- Bovine Coronavirus



## Coronavirus will fundamentally change the way we live, work, shop, eat and socialize

- Centres for Disease Control and Prevention (CDC) warns that Coronavirus may become a seasonal epidemic
- New variants have emerged, and vaccinated people can still carry and spread the virus
- Covid-19 safeguards have remained in place beyond lockdowns
- Biosecurity will become standard in nearly all public spaces

# 02

## How can UV-C be utilised?

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# UV-C Solutions portfolio.

## Air Disinfection

Application areas – General air purification

All professional indoor applications incl : Healthcare facilities, Meeting rooms, retail, hotel rooms, schools, universities, banks, gyms, restaurants.

- Typically, 1 unit per 40m<sup>3</sup> to 50m<sup>3</sup>



## Surface Disinfection

Application areas : General room/ space surface cleaning

All professional indoor applications: Treatment rooms, Healthcare facilities, Pharmacies, dentists, hotel rooms, schools, universities, banks, retail outlets, gym, spa, industries, cleanrooms, industrial kitchens, restaurants, transport etc. Note - Consumer unit also available

- Typically, 1 unit per 3m x 3m room



## Object Disinfection

Application areas : Object / device cleaning

All professional indoor applications : Healthcare facilities, mail rooms, reception, Factories, distribution centers, retail, Museums, schools, etc

- Typical cycle times of 3 to 5mins



## Office & Education



## Transportation



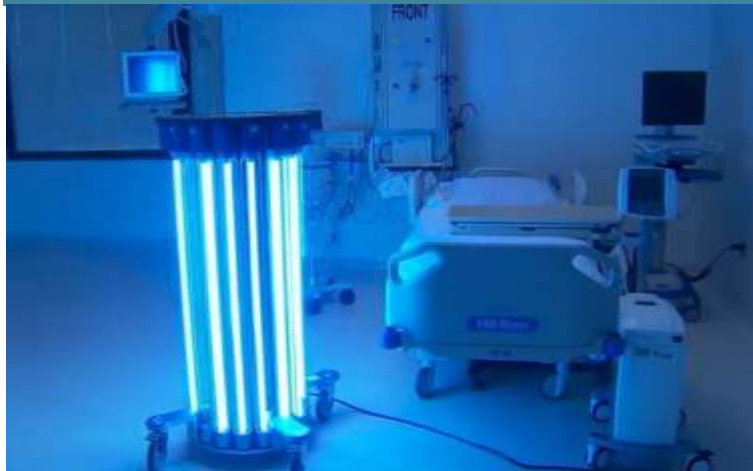
## Retail Stores, Supermarkets & Malls



## Hospitality Venues



## Healthcare



## Gym & Leisure Centres





**Thank You!**

**We would love to now answer any  
questions you may have.**