



BIOVITAE®

A P&P Patents & Technologies brand

General Presentation

Rome, 21 march 2022



THE PROBLEM: BACTERIAL AND VIRAL INFECTION

ANTI MICROBIAL RESISTANCE

10 MILLION
EXTRA DEATHS A YEAR BY 2050



COVID-19 THE CURRENT PANDEMIC

136 MILLION
GLOBAL CASES

4.5 MILLION
GLOBAL DEATHS



BIOVITAE is the first and only patented UV-free LED light that has been validated to provide the broadest microbicidal action able to kill bacteria and viruses.

A natural white light that is safe for humans/animals and sanitizes as it illuminates the environments in which it is installed.



Effective on all bacteria, it kills 99.8 % of Coronavirus in just a few minutes.



BIOVITAE®

**VIRUCIDAL AND BACTERICIDAL
WHITE LED LIGHT**

**CONTINUOUS SANITIZATION
WITHOUT STERILIZATION**

**COUNTERACTS THE
PHENOMENON OF ANTIBIOTIC
RESISTANCE**

**LIMITS THE RISKS OF VIRAL
CONTAGION**

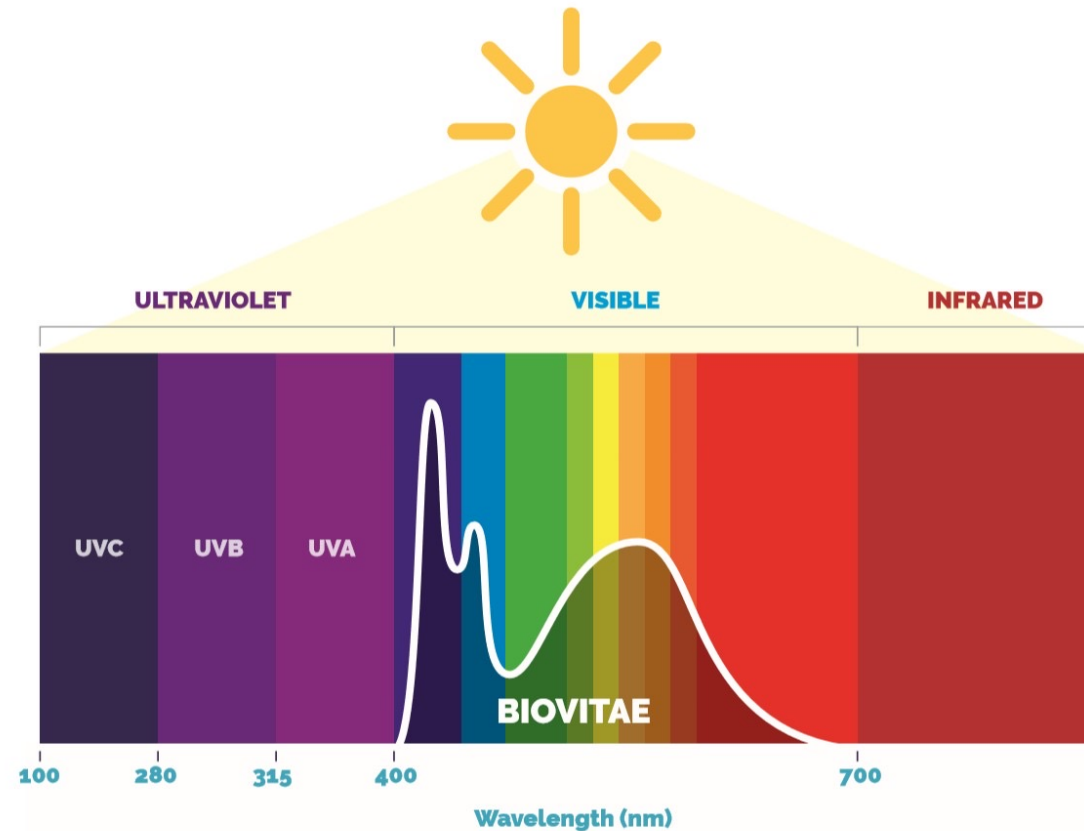
**LED LIGHT (UV-FREE) SAFE FOR
HUMANS AND ANIMALS**

FLICKER FREE

ECO-FRIENDLY



HOW IT WORKS



The microbicidal action is activated by the patented combination of frequencies within the visible (non-UV) spectrum range known as Sorèt band (400-420nm) which is scientifically proven to be harmful to viruses, bacteria and other microorganisms (fungi , spores, molds).

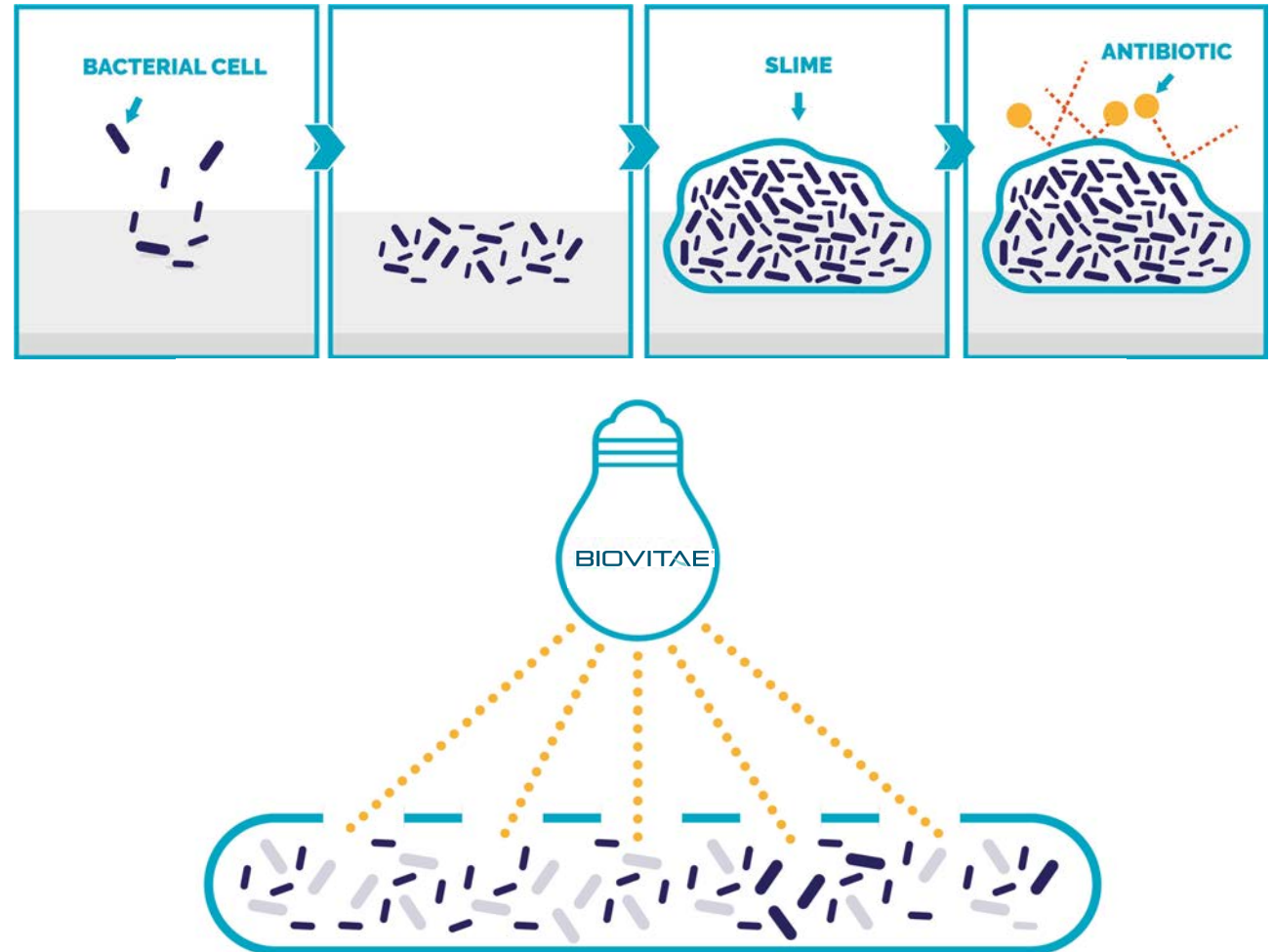
BIOVITAE CAN PENETRATE THE BACTERIAL BIOFILM AND DESTROY IT FROM WITHIN.

HOW IT WORKS ON BACTERIA:

The main cause of bacteria resistance is **BACTERIAL BIOFILM** in which bacteria colonies can grow, exchange information and become resistant.

BIOFILM protects bacteria from disinfectants and antibiotics **and is the most impermeable liquid substance (slime) ever discovered and only light can penetrate it.**

ONLY VISIBLE LIGHT IS ABLE TO PENETRATE BIOFILM AND ONLY BIOVITAE'S PATENTED FREQUENCIES ARE ABLE TO KILL BACTERIA INSIDE AND DEGRADE IT.



Efficacy on viruses

Tests' results of the multicentric study carried out in experimental conditions



Policlinico Militare Celio
Roma



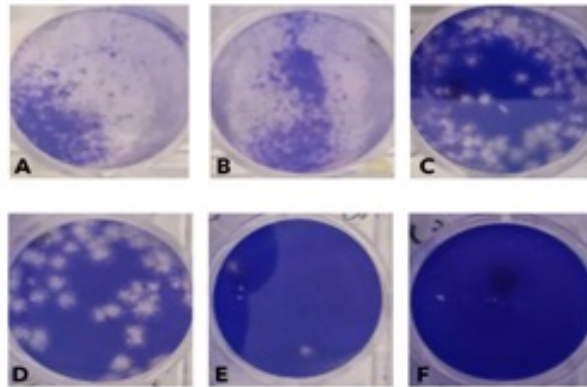
SAPIENZA
UNIVERSITÀ DI ROMA



Bundeswehr Institute
Di Monaco



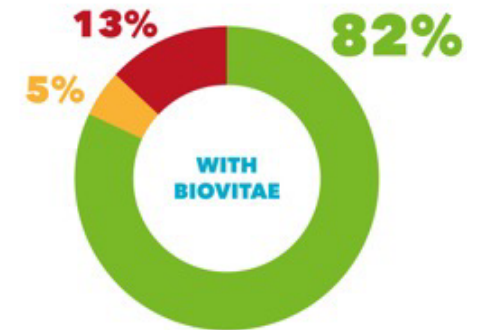
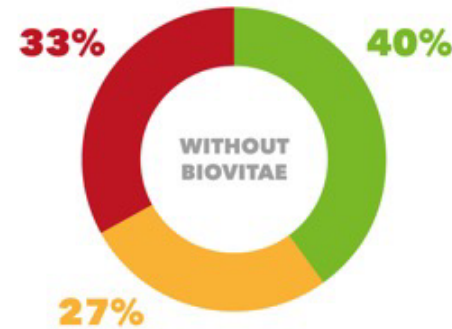
FOI CBRN
Svezia



99.8% reduction of SARS-CoV-2 in less than an hour of exposure to Biovitae light.

Efficacy on bacteria

In vivo tests carried out in the Emergency Hospital of Fiumicino Airport



GOOD BACTERIAL HYGENE
<12 cfu/100cm²

INADEQUATE BACTERIAL HYGENE
12 - 40 cfu/100cm²

POOR BACTERIAL HYGENE
> 40 cfu/100cm²

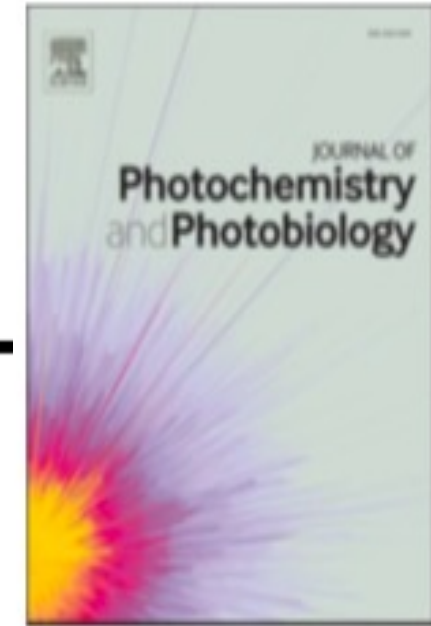


ELSEVIER

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Journal of Photochemistry and Photobiology

journal homepage: www.sciencedirect.com/journal/journal-of-photochemistry-and-photobiology



Rapid inactivation of SARS-CoV-2 with LED irradiation of visible spectrum wavelengths

The efficacy of Biovitae LED light on Coronavirus has been scientifically validated. The Journal of Photochemistry and Photobiology published the article in peer-review relating to the results of the tests carried out by the Scientific Department of Celio.

BIOVITAE INTRODUCES CONTINUOUS SANITISATION

Continuous sanitization is the most effective solution to prevent and contain microbial infections because it acts when the risk of contagion is highest; in the presence of humans that are both vectors and targets of viruses.

Biovitae sanitizes environments without sterilising them. It is not harmful to humans and safely prevents the development of infectious disease strains without weakening the normal functions of our immune system.

Biovitae is ideal for all indoor environments: homes, the workplace, gyms, public spaces and stores, and means of transportation.

**WORKS DURING THE
PRESENCE OF HUMANS**

**LED (UV-FREE) - NO RISK
FROM EXPOSURE**

**SANITIZES DURING
DAILY ACTIVITIES**

WHY BIOVITAE

BIOVITAE®

PATHOGENS ON SURFACES

The presence of an infected person is a significant risk factor as it can release viral loads through droplets containing viruses that remain suspended in the air or settle on surfaces.

Pathogens that survive in the environment and remain infectious can infect other people via aerosols or by hand contact with infected surfaces and subsequent contact with mucous membranes (mouth, eyes, nose)

The survival time of pathogens is influenced by the type of material and organic matter that can protect microorganisms from environmental stress such as temperature and low humidity.



COVID-19 INFECTION AND PROTECTION



SANITIZING LIGHTS COMPARED



ALL IN ONE DEVICE	X	✓	✓
SAFE FOR HEALTH	X	✓	✓
HIGH QUALITY WHITE LIGHT INDISTINGUISHABLE FROM A NORMAL LIGHT	X	X	✓
HIGH EFFICIENCY	X	X	✓
SHORT LIFETIME/ HIGH MAINTENANCE	✓	✓	X
EFFICACY ON ALL MICROBES	✓ X	✓ X	✓

SANITIZATION SYSTEMS IN CLOSED ENVIRONMENTS



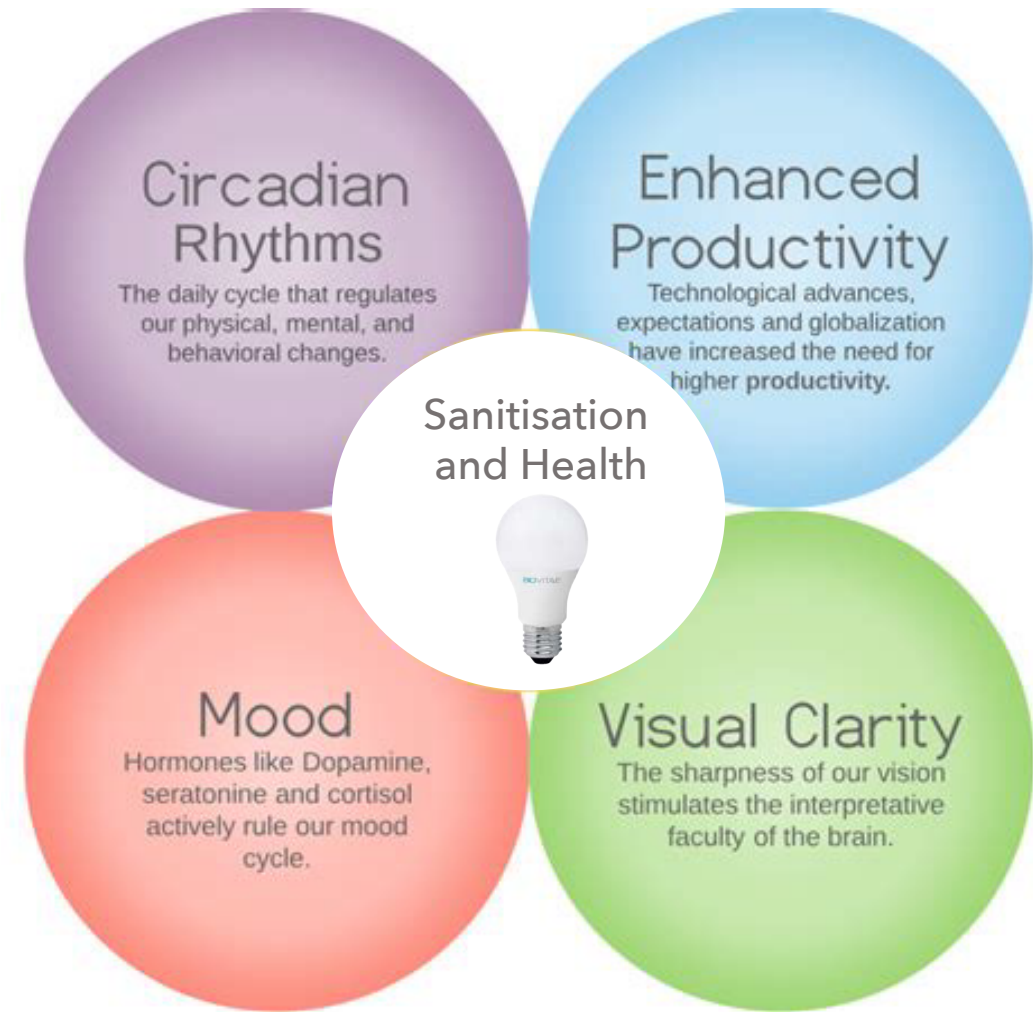
IT IS NOT PASSIVE	ONLY EFFECTIVE IN THE AIR	PASSIVE AND CONTINUOUS SANITATION
IT MUST BE CARRIED OUT BY AN OPERATOR IN THE ABSENCE OF LIVING BEINGS	ONLY EFFECTIVE IF SIZED TO THE VOLUME TO BE SANITIZED	CONTINUOUS ACTION IN THE PRESENCE OF LIVING BEINGS
LIMITED EFFECTIVENESS OVER TIME	NOT EFFECTIVE ON SURFACE	EFFECTIVE ON THE AIR AND THE ON SURFACE
	HIGHT COSTS	NO STRUCTURAL INTERVENTIONS NEEDED
	HIGHT CONSUMPTION	LOW COST
	STUCTURAL INTERVENTIONS OFTEN NEEDED FOR INSTALLATION	LOW CONSUMPTION

From Human Centric Lighting to Human Centric Sanitising Lighting

Human Centric Lighting (HCL) is mainly concerned with **emotional or visual features** of lighting technologies

The COVID-19 pandemic has shown first hand how **our globalised world is prone to rapid infection and the spread of dangerous pathogens**, due to the lack of effective and continuous sanitization in our living/work spaces

In addition to the existing features of HCL, **Biovitae adds the new an fundamental element of sanitization.**

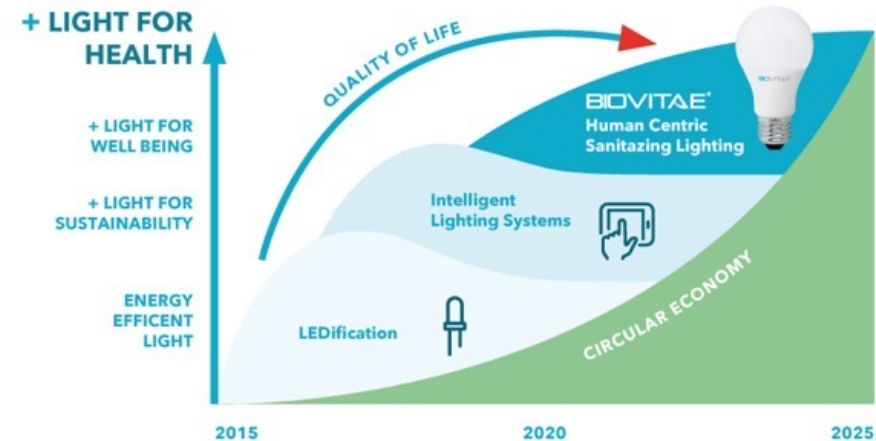
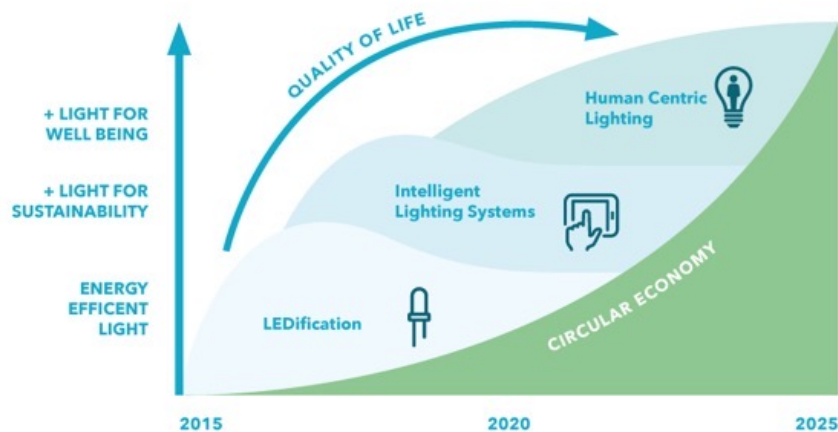


FROM
HUMAN CENTRIC



TO
**HUMAN CENTRIC
SANITISING LIGHTING**

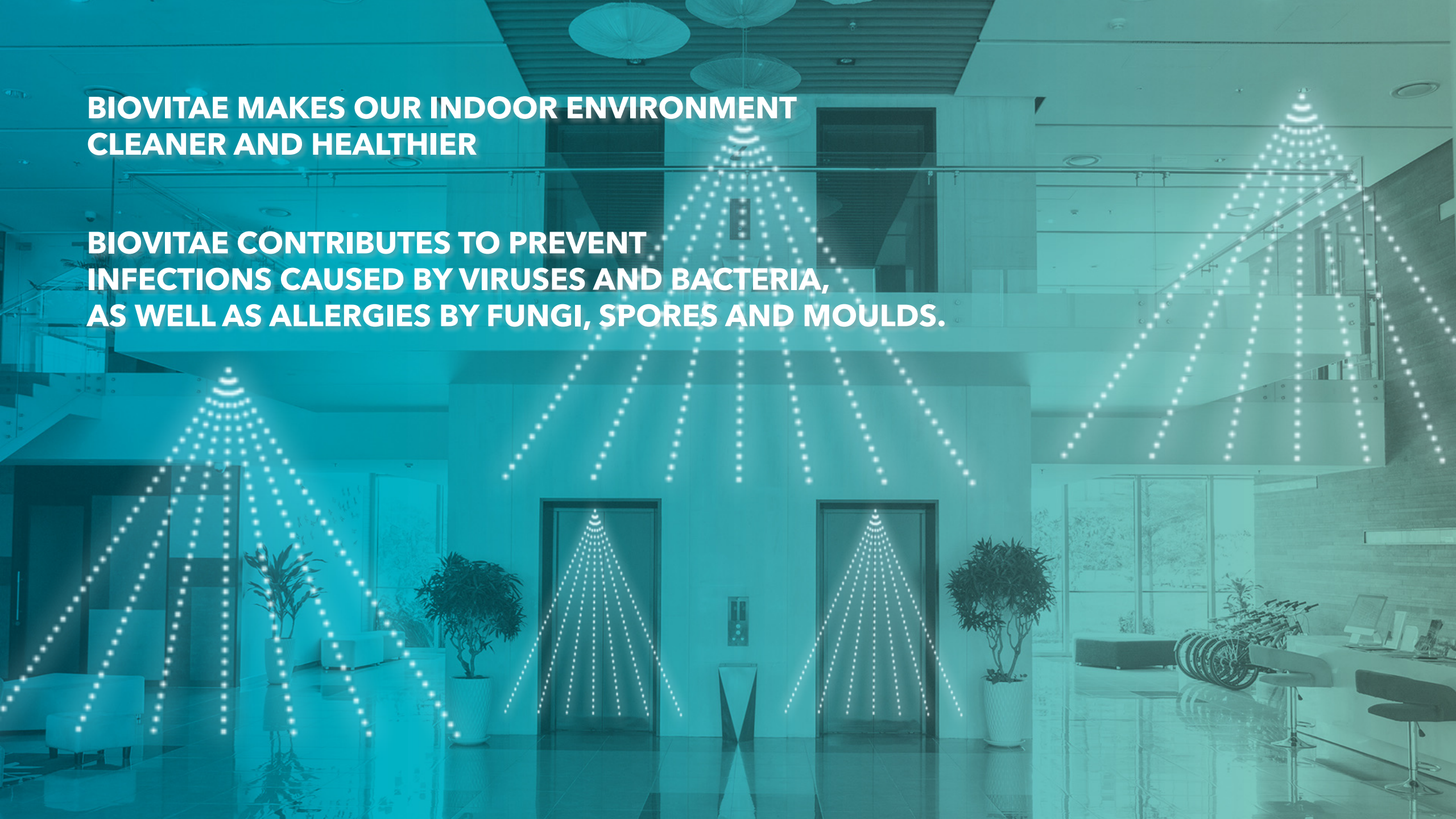
GROWTH OF VALUE OF LIGHT TO SOCIETY



Biovitae candidates as the next generation of lighting that can effectively sanitize while maintaining the same benefits and efficiencies as existing LED lighting.

**BIOVITAE MAKES OUR INDOOR ENVIRONMENT
CLEANER AND HEALTHIER**

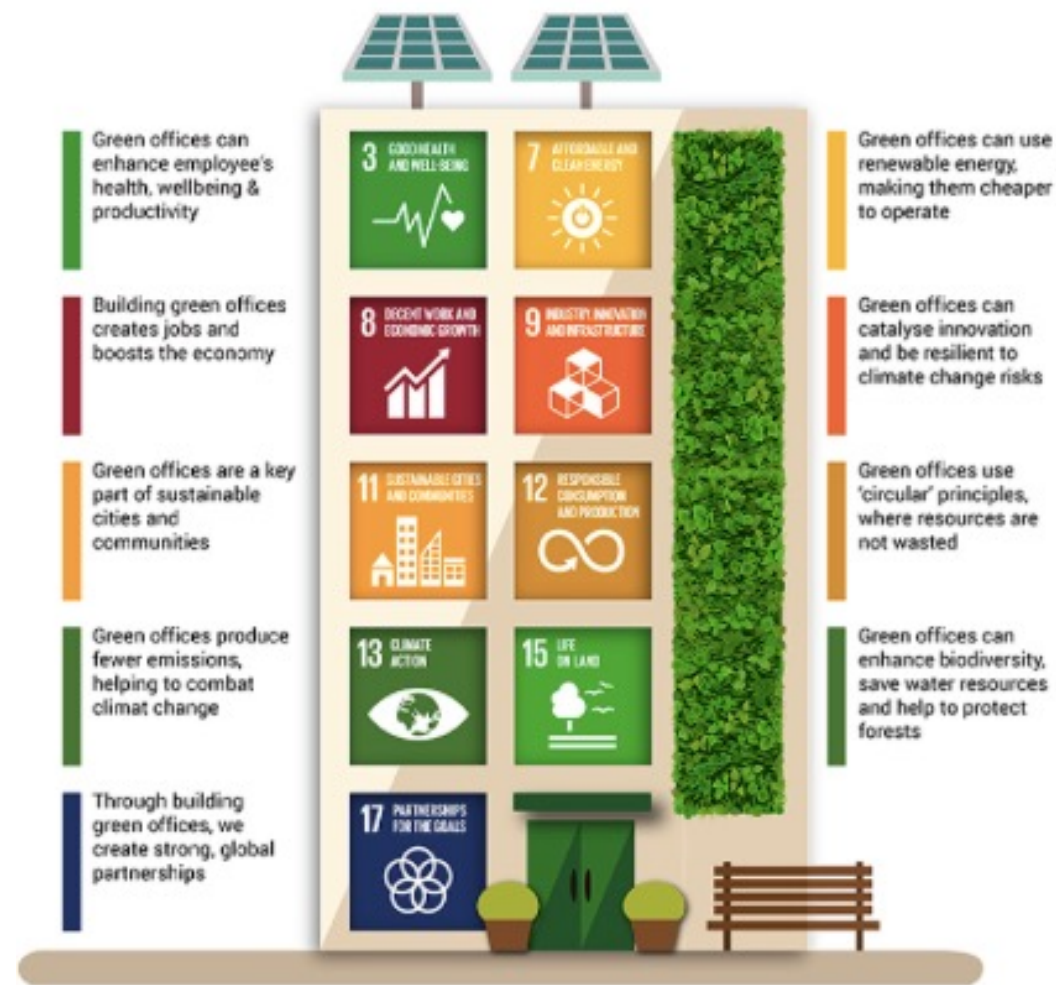
**BIOVITAE CONTRIBUTES TO PREVENT
INFECTIONS CAUSED BY VIRUSES AND BACTERIA,
AS WELL AS ALLERGIES BY FUNGI, SPORES AND MOULDS.**



GREEN BUILDING COUNCIL - Green offices

How Biovitae in *Green Offices* can provide the foundation toward meeting Sustainable Development Goals

- Controls spread of viral and bacterial infections
- Reduces lighting energy needs in the process.
- Designing for eyes: natural light and flicker free
- Indoor air quality through light controls the formation of spores and fungi in air conducts
- Contributes to reduce chemicals disinfectants



GREEN BUILDING COUNCIL - Green houses

How Biovitae in *Green Houses* can provide the building blocks toward meeting Sustainable Development Goals

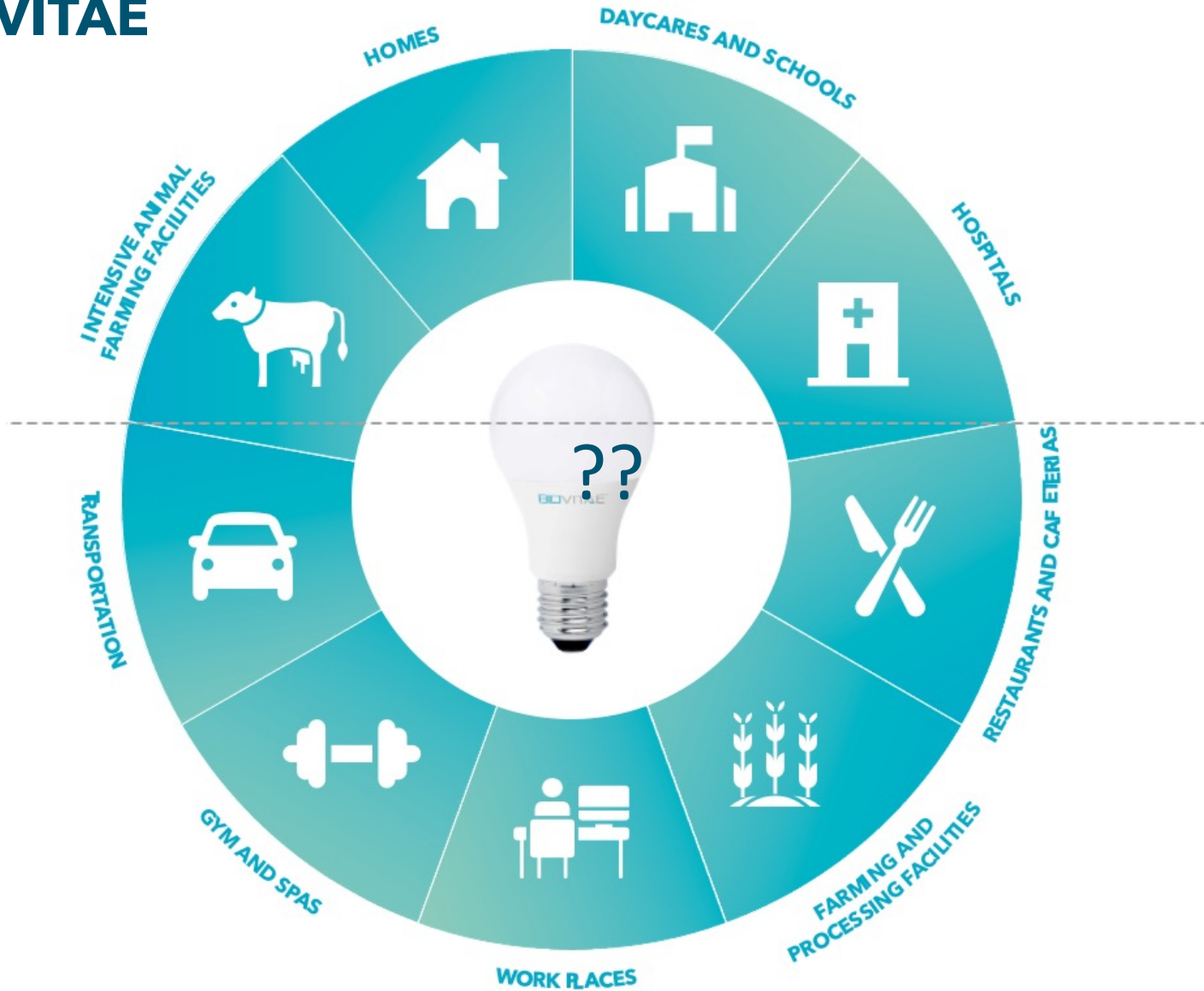
- Health and wellbeing promotion and infections prevention
- Emits natural light to ensure building users' comfort
- Limits the exposure to air contaminants generated by human activities
- Can help to permanently eliminate the problem of the formation of spores, moulds and fungi in these environments.



BIOVITAE SANITISES THE ENVIRONMENT IN THE PRESENCE OF HUMAN BEINGS



WHERE TO INSTALL BIOVITAE



BIOVITAE IS ECO-FRIENDLY

LOW ENERGY CONSUMPTION
(Energy Class A+)

COMPLIANT WITH THE ROHS2 DIRECTIVE
that regulates the use of heavy metals

REDUCES THE AMOUNT OF CO2
introduced into the atmosphere

PROMOTES THE CIRCULAR ECONOMY
as a long-lasting and recyclable device

DESIGNED BASED ON LIFE CYCLE
THINKING and LIFE CYCLE DESIGN.



BIOVITAE AND CIRCULAR ECONOMY

EXTENDED LIFESPAN

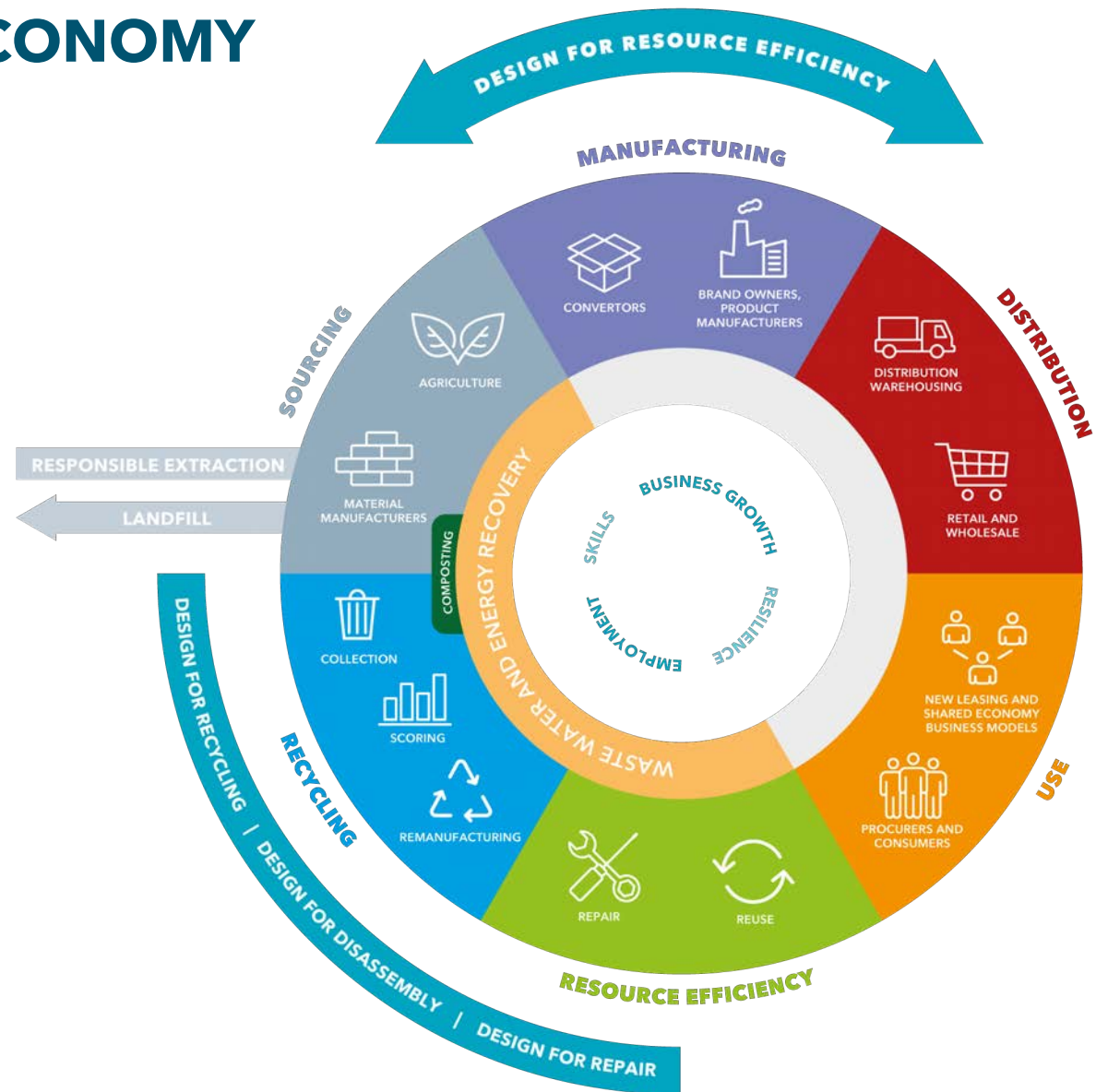
RENEWABLE AND RECYCLABLE MATERIALS

MATERIAL IDENTIFIABILITY AND TRACEABILITY

DISASSEMBLY, REPARABILITY, MAINTENANCE AND RECYCLABILITY

REPLACEMENT AND MANAGEMENT OF HAZARDOUS SUBSTANCES

COLLECTION AND REVERSE LOGISTICS



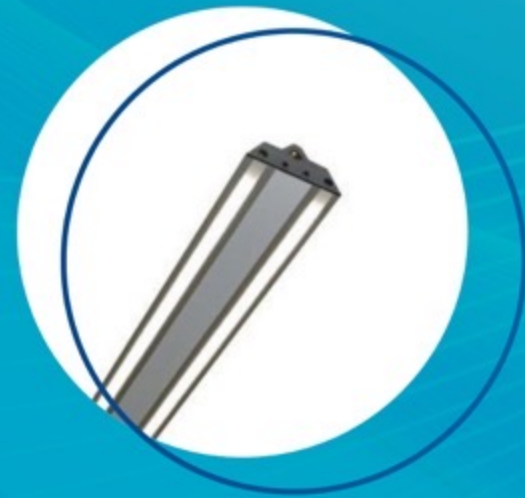
BIOVITAE PRODUCTS



BIOVITAE®



OUR PRODUCTS



PRODUCTS

BIOVITAE® GU10

6 Watt - 450 Lumen
Angolo d'apertura 70°
Dimensions: 56x50mm



BIOVITAE® Tube

Röhre L.060
8 Watt - 1300 lumen
Dimensions: 600 mm

Röhre L.120
20 Watt -2800 Lumen
Dimensions: 1200 mm

Röhre L.150
25 Watt -3000 Lumen
Dimensions: 1500 mm



BIOVITAE® PRO™

FIXTURE D.60x60
30 Watt - 4500 Lumen
Dimensions 600x600 mm

FIXTURE D.120x30
33 Watt - 4500 Lumen
Dimensions: 1200x300 mm



BIOVITAE® LOBBY™

Batten LIGHT L.120
42 Watt - 3300 lumen
Dimensions: 1200 mm

Batten LIGHT L.150
N/A Watt - N/A Lumen
Dimensions: 1500 mm



BIOVITAE® ORBIT™

Downlight D.95 round
10 Watt - 800 Lumen
Dimensions: 95 mm

Downlight D.180 round
20 Watt - 1800 Lumen
Dimensions: 180 mm

Downlight D.210 round
25 Watt - 2300 Lumen
Dimensions: 210 mm



ABOUT US

BIOVITAE®

PATENTS



PATENTS ITALY
IT102016000036840
IT102016000078746



PATENTS USA
US11,041,592



PATENTS JAPAN
JP2019-525413



PATENTS INDIA
382960

PATENT EXTENSION

EPO (see map)

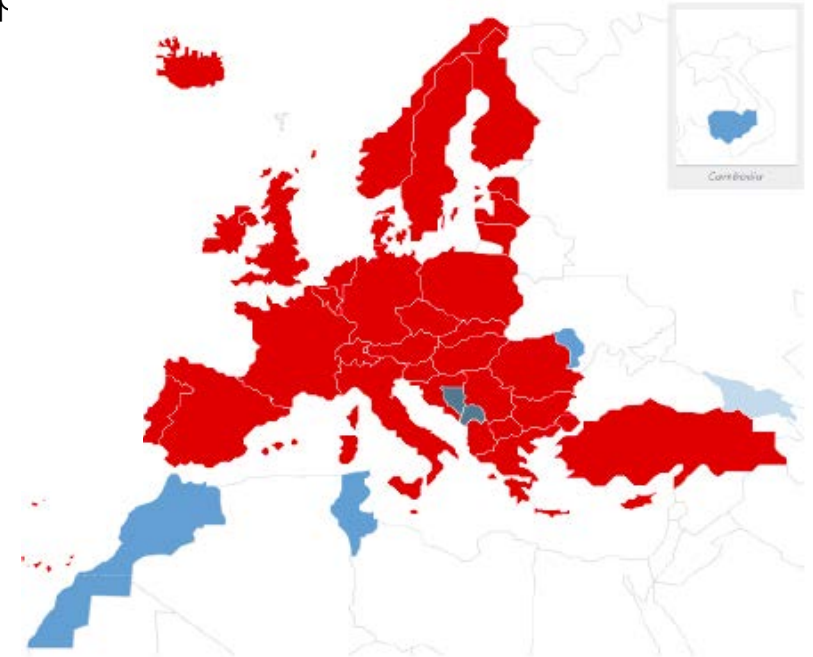
Cina

Brasile

Australia

South Korea

Russia



AWARDS



MECHF AWARD
«THE BEST INNOVATIVE PRODUCT OF THE YEAR»

SCIENTIFIC COLLABORATIONS



The International Centre for Genetic Engineering and Biotechnology (by UNIDO)



Le Commissariat à l'énergie atomique



Scientific Department Italian Military Army



Swedish Defence Research Agency



ENEA
Italian national agency for new technologies, energy and sustainable economic Development



CIHEAM
intergovernmental organisation for agriculture and nutrition security



Bundeswehr
Institute of Microbiology
Germany



Technical Research Centre of Finland



Centro Italiano Ricerche Aerospaziali



SAPIENZA
UNIVERSITÀ DI ROMA



UNIVERSITÀ
CATTOLICA
del Sacro Cuore



UNIVERSITÀ DEGLI STUDI
DI NAPOLI FEDERICO II



UNIVERSITÀ DEGLI STUDI
DI SALERNO

BIOVITAE IS CERTIFIED BY NATIONAL AND INTERNATIONAL BODIES

COMPANY CERTIFICATIONS



ISO 9001:2015
QMS



ISO 13485:2016
MEDICAL DEVICES

CONTRIBUTOR

GMDN

..... contributor

**Global Medical Device
Nomenclature**

PRODUCT CERTIFICATIONS



MARKS of CONFORMITY'



BIOVITAE®

THE LIGHT THAT PROTECTS

www.biovitae.it/en



CONTATTI

NEXTSENSE S.r.l.

Via della Rotonda 36

00186 Roma

Tel.+39 (0)6 69322721

info@nextsense.it



PATENTS AND
TECHNOLOGIES

CONTATTI

P&P Patents and Technologies S.r.l.

Via della Rotonda 36

00186 Roma

Tel.+39 (0)6 69322721

info@p-ptech.it