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# INNOVATION AT THE HEART OF THE LEGRAND INTERNET OF THINGS

FOR LASTING BENEFIT TO USERS

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PRESS FILE

2017



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#### FOR MORE INFORMATION

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This document summarises Legrand's approach to the Internet of Things, embodied by the Eliot program.



[www.legrand.com](http://www.legrand.com)

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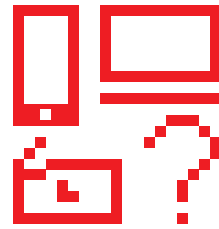
## A FEW FIGURES

■  
IN 2014 THERE WERE JUST UNDER **14 BILLION**  
CONNECTED DEVICES WORLDWIDE.

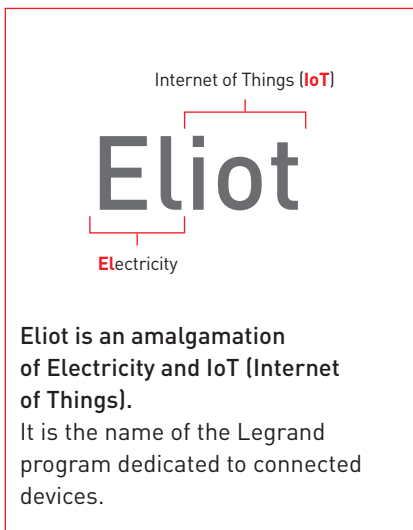
BY 2020, THERE ARE LIKELY TO BE **50 BILLION**.  
Source: Cisco

■  
AS A SPECIALIST IN ELECTRICAL AND DIGITAL BUILDING  
INFRASTRUCTURES, LEGRAND IN 2015 MADE SALES OF OVER  
**€300 MILLION** WITH CONNECTED DEVICES.

■  
LEGRAND SALES OF CONNECTED DEVICES ARE EXPECTED  
TO EXPERIENCE A **DOUBLE-DIGIT** OVERALL  
AVERAGE ANNUAL GROWTH RATE BY 2020.

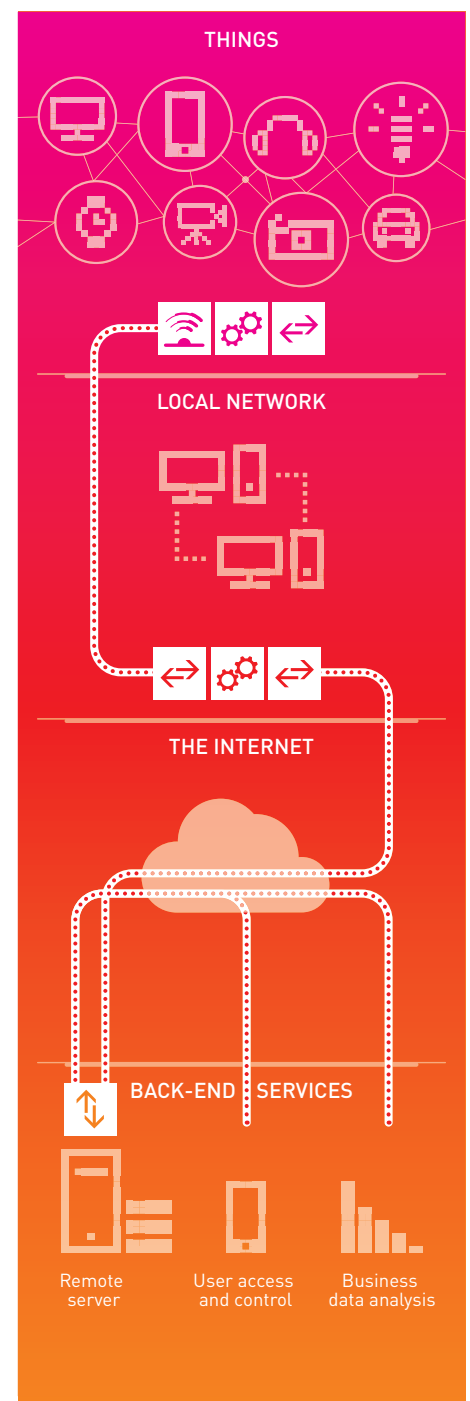


# WHAT IS A CONNECTED DEVICE?



**“The term connected devices – or Internet of Things – is used to refer to objects (...) which an Internet connection endows with added value in terms of function, information, usage or interaction with their environment.”**

*“Dictionnaire du web”* Dictionary 2015



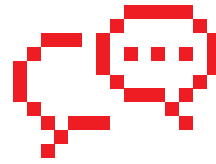
**SENSORS & ACTUATORS**  
(pressure, sound, temperature, acceleration, etc.)



**PROCESSING**



**COMMUNICATION**



## INTERVIEW WITH GILLES SCHNEPP

*“Buildings are at the heart of the Internet of Things revolution.”*



GILLES SCHNEPP - LEGRAND GROUP CHAIRMAN  
AND CHIEF EXECUTIVE OFFICER

### **Why are buildings at the heart of the Internet of Things revolution?**

Connected devices are gradually creeping into all areas of our lives, and transforming our habits. Over the next twenty years, connected devices are likely to become the norm. Products that are incapable of communicating, acting on information transmitted to them or being remotely actuated will then be the exception. And as development of these devices increases and the flow of data travelling through buildings becomes more complex, buildings need to adapt, as of now.

### **What makes Legrand a stakeholder in this revolution?**

The fact that it's our business! For more than 100 years we have been innovating to find the best solutions to users' expectations in terms of electrical and digital building infrastructures. The Internet of Things is a reality that we have already taken on board: over €300 million in our sales in 2015 were attributable to connected devices. Connected objects are an opportunity for us to move up to a mass market.

### **What is the rationale of the Eliot program?**

The question is not knowing whether the Internet of Things is coming, but in what form. We at Legrand see this as an opportunity to provide our customers with more added value. And by customers we mean both private individuals and professionals. Our aim is genuinely to provide users with additional benefits. The ability to communicate should enhance the product's value in use, by offering a real lasting benefit.

### **Numerous players are getting into the market for connected devices. How can Legrand stake a rightful claim to be a part of it?**

Because Legrand has a long history of involvement in the building sector. Because innovation is in our genes. Because we are close to our users, we know their requirements and expectations, and we respect them, especially the security of their data. Because at the end of the day this is what we do: offering simple, intuitive products that make a lasting difference to the daily lives of users, whether they are consumers or professionals.



# OUR VISION

The growth of the market for connected devices is opening up a new era for the building sector. Already a player in this Internet age, Legrand is convinced that the expansion of the Internet of Things will lead to growth in so-called “smart” solutions for both private individuals and professionals.



# A REVOLUTION UNDER WAY

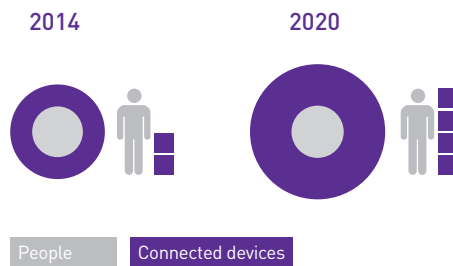
■  
**50  
BILLION**

CONNECTED DEVICES BY 2020

Source: Cisco

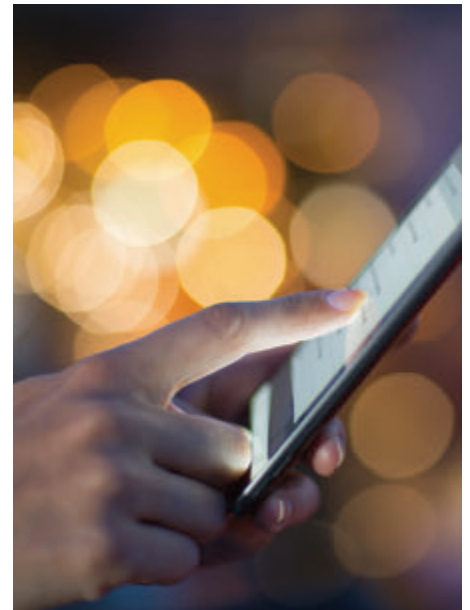
### RAPID GROWTH

In 2014 there were just under 14 billion connected devices worldwide. There are likely to be 50 billion by 2020. The average number of connected devices per person is thus likely to rise from 2 in 2014 to 4 in 2020 (source: Cisco).



### A MASSIVE SOCIAL TREND

Connected devices are gradually invading every sector: health, transport, commerce, energy, the environment, leisure, the home, industry, etc. No segment of the economy has been left untouched. The Internet of Things has gradually become established as the standard.





# LEGRAND — ALREADY CONNECTED

LEGRAND IS ALREADY A PLAYER IN THE  
INTERNET OF THINGS REVOLUTION.

■  
OUT OF THE GROUP'S 2015 SALES, OVER **€300 MILLION**  
WERE ATTRIBUTABLE TO CONNECTED DEVICES, UP **+34%**  
COMPARED TO 2014.

■  
AROUND THE WORLD LEGRAND ALREADY HAS OVER  
**22 MILLION** NODES\* INSTALLED.

■  
**23** LEGRAND PRODUCT FAMILIES WERE CONNECTED IN 2015.





# LEGRAND — ALREADY CONNECTED

## EXAMPLES OF PRODUCTS THAT ARE ALREADY CONNECTED

### SAFETY



### EMERGENCY LIGHTING UNITS

#### ENSURE EASIER MAINTENANCE

Since 1997, all Legrand's emergency units are smart and self-testing (battery and bulbs).

The ECO 2 units are equipped with addressable technology which can be used to ensure easy and ongoing control of the whole installation, whether locally or remotely.

### HOME SYSTEMS



### MY HOME LEGRAND\*

#### CONTROL ELECTRICAL EQUIPMENT IN THE HOME REMOTELY

Controlling your electrical installation from a smartphone or tablet: this is possible with Legrand's My Home solution. A solution for controlling electrical functions in the home, My Home provides centralised control and monitoring, with predefined scenarios, of heating, blinds and lighting.

\*Bus wire technology

### ENERGY EFFICIENCY



### ECO-METER

#### SEE YOUR CONSUMPTION SO YOU CAN MANAGE IT BETTER

The new connected Legrand eco-meter can be used to measure and display electricity consumption on the meter or on web pages. Detailed tables can be used to analyse precisely the installation's electricity consumption, assisting decision-taking that can result in energy savings.

### SOUND DISTRIBUTION



### NuVO OFFER

#### PLAY MUSIC IN DIFFERENT ROOMS, INCLUDING FROM A MOBILE DIGITAL SOURCE

With the NuVO offer, it is now possible, with a single source and several connected receivers and diffusers, to play music in different rooms, including from a mobile digital source. This can be done simply with easy access, offering great convenience for users.



## OUR BELIEF

■  
THE MARKET FOR CONNECTED  
DEVICES IN 2020:

**40%** BUSINESS  
TO CONSUMER

**60%** BUSINESS  
TO BUSINESS

Source: [www.iot-analytics.com](http://www.iot-analytics.com)

### **A new era is dawning for the building sector**

Today's growth in the number of connected devices is creating a revolution in the building sector. Firstly because digital infrastructures need to be expanded. But above all because changing usage means more and more building-related products being connected and controllable, including remotely.

### **Concerning both individuals and professionals**

Connected devices will increasingly become must-have objects for professionals in the commercial and industrial sectors as well as for private individuals in the home.

### **Providing additional benefits**

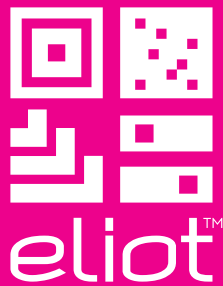
Smart, connected devices will help add new value for users: offering additional services, automating processes, reducing response times, understanding a status and adjusting decisions accordingly, etc. Legrand's connected products will make users' lives even simpler, with for example automated maintenance, centralised remote controls and even enhanced building security.

### **If they are to last, connected devices must be reliable**

Connected devices will only become established if they bring lasting, substantial and reliable user benefits. Legrand's pragmatic approach, its expertise in the building sector, its proximity to customers and its capacity for innovation are testament to the solidity and permanence of its offer.



CONNECTED OBJECTS WILL REVOLUTIONIZE  
USAGE ALSO IN THE INDUSTRIAL AND SERVICE  
SECTORS.



# OUR APPROACH

## THE ELIOT PROGRAM

Convinced that the Internet of Things will become established as the standard, Legrand is speeding up development of its connected offer with the Eliot program. Mobilising the whole of the Group, Eliot is designed to revitalise communication about Legrand products, wherever the Internet of Things can provide users with additional benefits.



## THREE PRINCIPLES



*“Privacy and data security are at the core of the Eliot dynamic.”*



PIERRE-YVES HASBROUCK  
USER INTERFACE MARKETING MANAGER,  
“NEW USES AND FUNCTIONS”

### 1. ENHANCING THE PRODUCT'S VALUE IN USE

The aim of the Eliot program is not the production of connected devices as an end in itself. The communication capacity added to the Legrand product should permanently increase the benefit for the user.

#### **Eliot facilitates daily life**

Connected objects carrying the Eliot signature can:

- SIMPLIFY usage
- FACILITATE maintenance
- DEMOCRATIZE complex functions
- CUSTOMIZE products according to users' needs, desires and habits.

Eliot also helps to respond to societal developments, particularly the quest for enhanced comfort and energy savings, increasing security needs and home care for people with loss of autonomy.

### 2. DESIGNING SIMPLE DEVICES THAT ARE INTUITIVE AND EASY TO INSTALL

Legrand products are characterised by their simplicity and their ease of use and installation, which are part of the Group's DNA. These values also underlie the expansion of the Group's connected devices. In line with our aim of ensuring “Design for all”\*, Legrand connected devices are very intuitive.

### 3. RESPECTING THE USER

Consistent with its values, respect for the user is an imperative for Legrand. Eliot thus contributes to preserving the confidentiality of data.



#### **A LABEL FOR ALL LEGRAND CONNECTED DEVICES**


As well as a development program, Eliot is also a label. Legrand connected devices will be marked with the program logo for easy identification.

\*“Design for all” refers to an approach aimed at providing products that are simply and easy to use.



## A DRIVE FOR INNOVATION

■  
R&D AT LEGRAND  
REPRESENTS BETWEEN  
**4 AND 5%**  
OF THE GROUP'S  
SALES EACH YEAR

 *“Eliot is driving innovation. We are innovating not just to add connected interfaces to our current offer, but also to develop natively-connected devices.”*



PATRICE SOUDAN - DEPUTY CHIEF EXECUTIVE  
OFFICER, EXECUTIVE VP GROUP OPERATIONS

### THE ELIOT PROGRAM IS PART OF THE LEGRAND GROUP'S STRATEGY OF CONTINUOUS INNOVATION.

The program aims to:

- Connect existing devices, by adding gateways to the existing offer.
- Develop new products that are natively connected, in other words intrinsically designed to communicate.
- Imagine ground-breaking concepts, to give a taste of the future.

### THE ELIOT PROGRAM CONCERNS ALL LEGRAND GROUP TEAMS, ALL BRANDS, ALL AROUND THE WORLD.

It is especially supported by:

- **An innovation and systems team** working on technological components, such as communication protocols.
- **Development teams** responsible for integrating these technological components into the product portfolio.
- **Legrand's design team** in Europe, Asia and the US, whose role is to explore trends and usage and to search for the best ratio between form, function and use of the Group's products and solutions.

### A DEDICATED CLOUD-BASED SYSTEM

Eliot involves a cloud storage system for data gathered via the Group's applications. Its architecture and storage mode help to ensure the protection of user data confidentiality.

### SUITABLE INFRASTRUCTURE

To communicate, connected objects not only require high-performance networks but also a building infrastructure that allows them to connect to these networks. As a specialist in electrical and digital infrastructures, Legrand is providing innovative solutions for this purpose at several levels, from mesh networks to distribution solutions, via convergent networks.

### ELIOT, A PROGRAM WITH AN INTEROPERABILITY FOCUS

Interoperability refers to the capacity of a product or system to enter into standard communication with other products or systems. As this is an essential precondition for effective development of connected objects, Legrand makes every effort to help define relevant standards. The challenge is to promote open languages able to ensure data exchange and third-party system integration, with the ultimate aim of providing added user benefits.



## A DRIVE FOR INNOVATION

■ OVER **2 100**  
PEOPLE IN R&D IN 2015,  
INCLUDING CLOSE TO **39%**  
DEDICATED TO ELECTRONICS,  
SOFTWARE AND DIGITAL  
OFFERINGS

### STRATEGIC ALLIANCES

On the strength of the Eliot dynamic, Legrand is engaged in various alliances aimed at ensuring that a common language enables connected objects to communicate, thereby ultimately generating additional usage patterns.

Alongside national initiatives such as Confluens, Legrand is also actively engaged internationally in the All Seen Alliance, which seeks to define standards for communication and interoperability. Moreover, the Group is one of the pioneers of the ZigBee® Alliance, which has released a wireless communication standard for buildings.



Legrand is an active member of the AllSeen Alliance, a leading international consortium aiming to promote the global adoption of global products, systems and services to support the Internet of Things on the basis of shared technology. Alliance members are collaborating on an AllJoyn technology-based open-source software project supported by all of the industry, that accepts contributions from members and from the open source community.



Legrand is a long-standing member of the ZigBee® Alliance. ZigBee® is the open global wireless standard for the Internet of Things designed to make simple and smart objects work together, increasing the comfort and efficiency of everyday life.



## A DRIVE FOR INNOVATION

 *“On the strength  
of the Eliot dynamic,  
Legrand is engaged in  
various partnerships.”*



PIERRE LAROCHE - GROUP VP PROJECTS,  
INNOVATION & SYSTEMS DEPARTMENT

### AN ACTIVE PARTNERSHIP POLICY

On the strength of the Eliot dynamic, Legrand is engaged in various partnerships to promote interoperability of connected products in buildings.

In mid-year, Legrand thus announced that it would be working with US-based **Nest, Inc.**, incorporating the NestWeave protocol into some of its own products. Legrand also signed an international technology partnership with **Samsung** to develop products that improve hotel room management and comfort. Finally, Legrand is partnering with **La Poste** to make its own connected offering compatible with the Digital Hub provided by La Poste.

Legrand also invested in a round of financing for **Netatmo**, a specialist in connected objects for the home that is known for its proactive stance and innovative knowhow. This link-up will facilitate potential future collaboration between Legrand and Netatmo in developing interoperable electrical and digital infrastructure products with enhanced value in use.

Interoperability is also at the heart of a variety of collaborative projects driven by Legrand at both national and European level together with research laboratories and universities.

In addition, Legrand is engaged in partnerships with leading edge start-ups, especially in the field of sensors (for heat, presence or air quality). The aim is to enhance home automation applications in energy management, heating and cooling, air quality control or assisted living.



### IN CHINA, LEGRAND AND TCL SMART HOME JOIN FORCES TO CONNECT THE HOME

TCL Corporation\* is a major player on the Chinese market, manufacturing TV sets, smartphones and other domestic appliances. Since July 2016, its subsidiary TCL Smart Home and Legrand have decided to pool their skills to provide connected solutions for the residential market. Legrand provides infrastructures and solutions for integration with the various devices in connected homes. The aim is to become a major player of the Chinese connected home market, with connected audio/video door entry systems, connected TV sets, smart domestic appliances, etc.

\*TCL Corporation is a Chinese business from which Legrand acquired two entities, TCL Huizhou and TCL Wuxi.



# ELIOT IN ACTION



CALL TRANSFER TO TABLET  
OR SMARTPHONE



TOUCH SCREEN



VIDEO MEMORY



BADGE-BASED ACCESS CONTROL



INTERCOM MESSAGING

## NEW CLASSE 300 CONNECTED DOOR ENTRY SYSTEM

Classe 300, Legrand's new connected video door entry system, allows the user to interact with the caller by voice and by image, whether locally or remotely, on their tablet or their smartphone. Made very easy to install thanks to the Door Entry app, Classe 300 also enables multiple controls, e.g. over lighting or automated sprinklers.



NEW CLASSE 300 X13E IS THE VERY  
FIRST CONNECTED DOOR ENTRY  
SYSTEM ON THE MARKET.  
A TECHNOLOGICAL REVOLUTION  
TO CHANGE EVERYDAY LIFE.



### LIFE IS MADE EASIER WITH A CONNECTED DOOR PHONE!

#### Connected to your world

Someone calling when you're out? No problem, you can see who it is, answer and let them in, no matter where you are. Classe 300 automatically transfers your call to your tablet or your smartphone.

#### Connected to your loved ones

If you wish to talk to your family at home, just call your connected door phone and it's as if they were next to you!

#### Connected to your hobbies

If you need some relaxation, and feel like doing some reading, cooking or DIY, Classe 300 and its app will let you answer the door and let visitors in without having to interrupt what you happen to be doing.





# ELIOT IN ACTION

- AN APPLICATION: HOME CONTROL

- LOCAL OR REMOTE CONTROL, USING A SWITCH OR THE VOICE

- REPOSITIONABLE SWITCHES

- NOTIFICATIONS AND ALERTS ON YOUR SMARTPHONE

## CÉLIANE WITH NETATMO: CONNECTED HOME CONTROLS

Developed with Netatmo, a specialist in connected devices for the home and Legrand's partner, Céliane with Netatmo represents a major innovation that prefigures a new generation of connected user interfaces. Using Céliane with Netatmo allows to operate traditional controls in the home such as lighting or shutters, while making it easy to add further functions such as thermostats for example. Spearheading the Eliot program, Céliane with Netatmo will receive its world premiere when it is launched in France in 2017.



Hello  
Céliane™  
with  
NETATMO



## CÉLIANE WITH NETATMO - POPULARIZING THE CONNECTED HOME

Centred on the user experience, Céliane with Netatmo targets both professionals and consumers. The installation and networking of devices have been made deliberately simple and require no specific tools. The application can be downloaded free of charge

and presents a very intuitive interface enabling users to control their devices without professional assistance. The user thus has access to an experience which enhances both their comfort and their safety but also allows him to consult his energy consumption.

HELLO CÉLIANE WITH NETATMO,  
SIMPLICITY AND EVOLUTIVITY.  
USERS CAN INTERCONNECT  
ROOMS IN THEIR HOME  
ACCORDING TO REQUIREMENTS  
AND CONNECT NEW DEVICES  
AS AND WHEN THEY WISH.



## ELIOT IN ACTION

### DLM: DIGITAL LIGHTING MANAGEMENT

The technologically innovative new DLM (Digital Lighting Management) range was developed for the commercial sector in North America. DLM consists of a connected platform enabling control of every switch, socket and lighting point in an installation. The system is very easy to install, and offers flexibility and scalability to help optimize overall building energy efficiency.

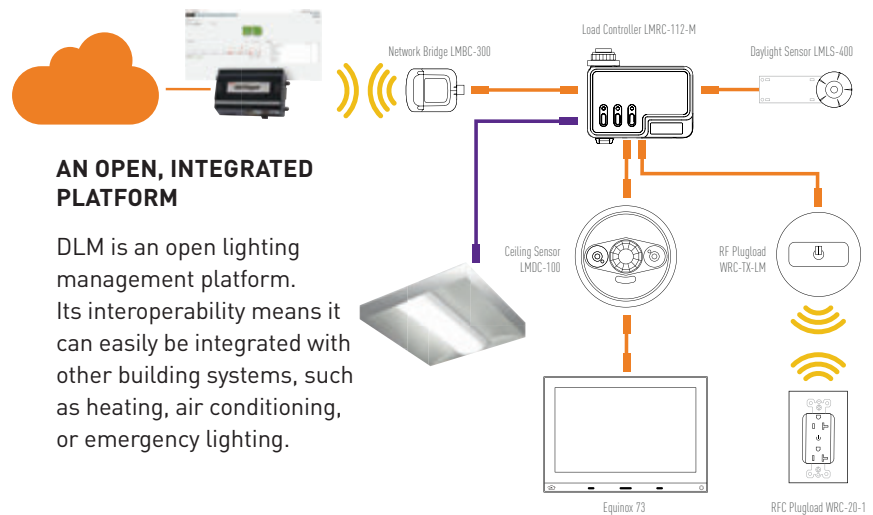
- A PLUG N' GO™ SYSTEM

- FLEXIBILITY AND CUSTOMIZATION

- SCALABILITY



DLM: DIGITAL LIGHTING  
MANAGEMENT





# ELIOT IN ACTION

A CONSISTENT OFFER,  
REGULARLY ENRICHED



NFC MODULAR DIMMER



MY HOME PLAY



SOUND SYSTEM



IP ROOM CONTROLLER



DIGITAL AUDIO



SMART LIGHTING CONTROL



MYHOME SYSTEM



INTUITY HOME SYSTEM



AIR QUALITY



SMART THERMOSTAT



VANTAGE SYSTEMS



DRIVER MANAGER



# ELIOT IN ACTION

A CONSISTENT OFFER,  
REGULARLY ENRICHED

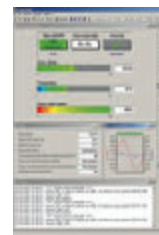
SAFETY & SECURITY



EMERGENCY LIGHTING



COLOUR IP DOOR ENTRY SYSTEM



UPS



DOORBELL



IP CCTV



STOP & GO



CLASSE 300 X13E DOOR ENTRY SYSTEM



BURGLAR ALARM



# ELIOT IN ACTION

A CONSISTENT OFFER,  
REGULARLY ENRICHED

ENERGY EFFICIENCY



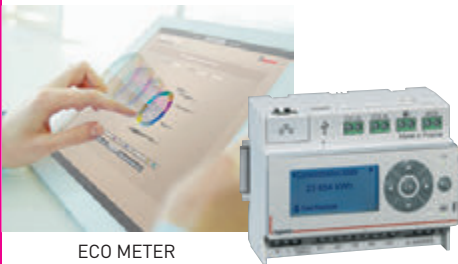
DIGITAL LIGHTING MANAGEMENT



OFFICE ENERGY MANAGEMENT



BUILDING MANAGEMENT SYSTEM



ECO METER



BRANCH CIRCUIT MONITOR



RACKLINK POWER MANAGEMENT



SMART RACK CONTROLLER



HYBRID TRANSFER SWITCH



POWER DISTRIBUTION UNIT



MOBILE SOCKETS



**ELIOT**  
**IN ACTION**  
A CONSISTENT OFFER,  
REGULARLY ENRICHED

**ASSISTED LIVING**



EMERGENCY CALL & MONITORING SYSTEMS



ACTIVITY MONITORING SYSTEMS



**Jontek**

PLATFORM MONITORING SOLUTIONS



ACTIVITY MONITORING & AID CALL SYSTEMS





## ELIOT IN ACTION



*“The Internet of Things allows users to compose new features that further enhance their experience.”*



MILKA ESKOLA - LEGRAND GROUP VP  
ART & DESIGN

### TRAILBLAZING RESEARCH

The Eliot program is also about research. To take some examples, the Group is working on connected surge protectors, natively connected sockets and smart sensors for assisted living.

But the Eliot dynamic goes even further, inspiring exploratory projects conducted by the Legrand Design team to imagine avant-garde concepts that prefigure the future, similarly to concept cars.

### ASSISTED LIVING: going even further with Eliot

Connected sensors, detection fields, supervision systems, e-monitoring: connected devices pave the way for new features for securing the home, its occupants experiencing diminished autonomy and their family & friends. Eliot helps Legrand explore avenues for next generation home care solutions.



### LEGRAND GIVES US A TASTE OF THE ELECTRICAL CONTROLS OF THE FUTURE

FLOCOON Pixel puts the spotlight on an unprecedented form and concept, with control units which create a completely new relationship between people and their homes. Drawing inspiration from the world of connected devices, FLOCOON Pixel aims to explore a smart and intuitive way of managing controls based on interaction and the merging of function with form. In a truly ground-breaking way, users get to play and combine functionalities simply by making intuitive gestures.

Thanks to the Internet of Things, the pixel, as a basic unit in the shape of a pentagon, can be combined with others to create an infinite wealth of combinations. Thanks to a dedicated app, users are placed centre-stage in personalising their interface, in both aesthetic and functional terms. For instance, they can combine the “dimmer” pixel with the “motion sensor” pixel, thereby generating enhanced functionality in a playful, intuitive way.

FLOCOON Pixel turns lighting control into something playful, and gives a taste of the electrical controls of the future.

FLOCOON PIXEL,  
A GROUND-BREAKING  
CONCEPT IN ELECTRICAL  
HOME CONTROLS  
INTRODUCED AT THE SAINT-  
ETIENNE INTERNATIONAL  
DESIGN BIENNIAL 2015





# OUR AMBITION

By revitalising Legrand's offer with an increasing number of connected devices, the Eliot program is contributing to the Group's growth.





## A GROWTH DYNAMIC



*“Societal and technological mega-trends, especially as regards digital, represent major growth opportunities for Legrand.”*



PAOLO PERINO - CHAIRMAN OF BTICINO  
AND EXECUTIVE VP STRATEGY AND DEVELOPMENT

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### **Increasing the number of connected product families**

The aim of the Eliot dynamic is to drive up the Group's number of connected product families from 20 in 2015 to around 40 by 2020.

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### **Generating growth**

The expansion of connected devices will result in smarter solutions achieving greater market penetration. Legrand's connected offer, which represented over €300 million in sales in 2015, should experience double-digit overall average annual growth between now and 2020.

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### **Offering new services to professional users**

Concierge services, energy management, predictive maintenance, data analysis, etc: thanks to the Internet of Things it is now possible to offer Legrand users additional new services.

# GLOSSARY

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**INTERNET OF THINGS** The Internet of Things represents the extension of the Internet to things and places in the physical world. While the Internet usually does not extend beyond the electronic world, the Internet of Things (IoT) represents the exchange of information and data from devices in the real world to the Internet. (Source: Wikipedia)

**CONNECTED DEVICE** A device having a connection to the Internet or connected to a smartphone whose connection it uses.

**DESIGN FOR ALL** Refers to an approach aimed at providing products that are simply and easy to use.

**INTEROPERABILITY** The capacity of a product or system to communicate in a standard way with other products or systems.

**NATIVELY CONNECTED** Refers to products inherently designed to communicate.

**NODE** Connection point in a network.

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