telkonet

Hospitality 2023: green technology in Hotels

World-scale report on the technological
development of Hotels and
the perception of sustainability
as a new market trend

Introduction

The Hospitality market is facing a period of major changes. On the one hand, the pandemic crippled the entire tourism industry for two years and is now starting up again in a disruptive way. On the other, the energy crisis that is primarily afflicting Europe makes it necessary to quickly reverse course in favor of more energy-conscious consumption. Adding to this complex scenario is the need to achieve carbon neutrality in the Tourism sector through responsible travel choices that can reduce global CO_2 emissions by up to 8%. It is important, therefore, to move toward this process of ecological transition that will achieve climate goals and recognize the central role of Sustainable Tourism in the world economy of 2050.

The following report aims to map the global technology level of facilities in the Hospitality market, considering technology a valuable ally for hoteliers to optimize resource consumption, adopt more responsible management and increase guest satisfaction.

Hoteliers

Climate Action initiatives have encouraged Hospitality businesses to adopt new advanced solutions to optimize consumption and contain costs. Green technologies that support hoteliers in saving energy and organizing operational processes are Energy Management Systems (EMS), Guest Room Management Systems (GRMS), Property Management Systems (PMS), and Building Management Systems (BMS).
Only 11 % of Hotels worldwide today do not have any technology installed, and in most cases, hoteliers rely on the common sense of guests or Hotel operators to manually manage room functionality and the cooling/heating system. Nowadays, it is essential for Hospitality facilities to adopt state-of-the-art devices and software to ensure the sustainable development of their business.

Guests

The process of ecological transition finds valuable supporters in the younger generation and, specifically, in Gen-Z, which is considered the Voice of Sustainability today. Young people are the most informed citizens about environmental pollution and global warming, they are the first to denounce an unsustainable lifestyle and adopt responsible habits to improve the health of our planet.
The guests of the future belong to Gen-Z and, for this reason, it is important to take their values into account. More and more travelers are looking for immersive and authentic experiences with the utmost respect for the environment and culture they encounter.

Founded in 1999 as a communication and network provider, Telkonet has developed into a leading IoT innovator focused on intelligent automation and Energy Management Solutions. With its headquarter in Waukesha, Wisconsin, Telkonet is made up of a diverse team of 30 employees working together across the United States to achieve our shared commitment to sustainability. The core strength of the organization lies in the unique experiences and engagement of each member, making collaborative teamwork a key element to our success. Through its lean structure, effective communication and alignment is maintained between all levels in the company to achieve the organization's goals and value.

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Technology and Hospitality

Where do we stand?

*Mapping the level
of technology in Hotels
around the world
and new trends in 2023*

Technology in Hotels

Nowadays, technology in Hospitality is a fundamental requirement for Hotels to survive in a highly competitive and ever-changing market. It constitutes a quality that is increasingly sought after and demanded by travelers around the world and enables them to offer high levels of personalization during the stay experience.

Subjects involved

The survey involved individuals responsible for the management of a Hotel or Hotel chain and those involved in the installation of technology systems and equipment within a property, with the aim of obtaining a comprehensive overview and understanding of the new requirements of tourism.
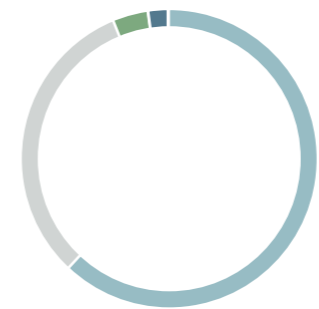
- **62%** · Hotel or Hotel chain
- **32%** · supplier (technician, architect, system integrator, etc.) involved in the installation of technology systems
- **4%** · other types of properties (multifamily or student housing)
- **2%** · consultants and external figures involved in the installation process
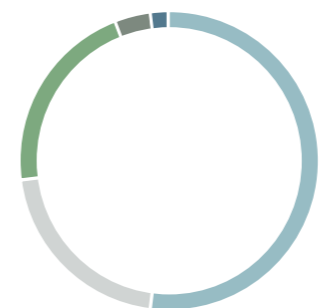
- **52%** · Europe and UK
- **21%** · America and Overseas
- **21%** · Middle East
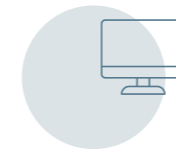- **4%** · Asia Pacific
- **2%** · Australia
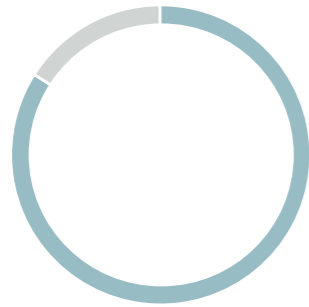
84% of the Hotels involved are 3-, 4- and 5-star. Given the high number of stars and the quality of stay offered by these facilities, it is possible to say that the data collected possess the necessary requirements to define "a good level of technological innovation" in the world of Hospitality.
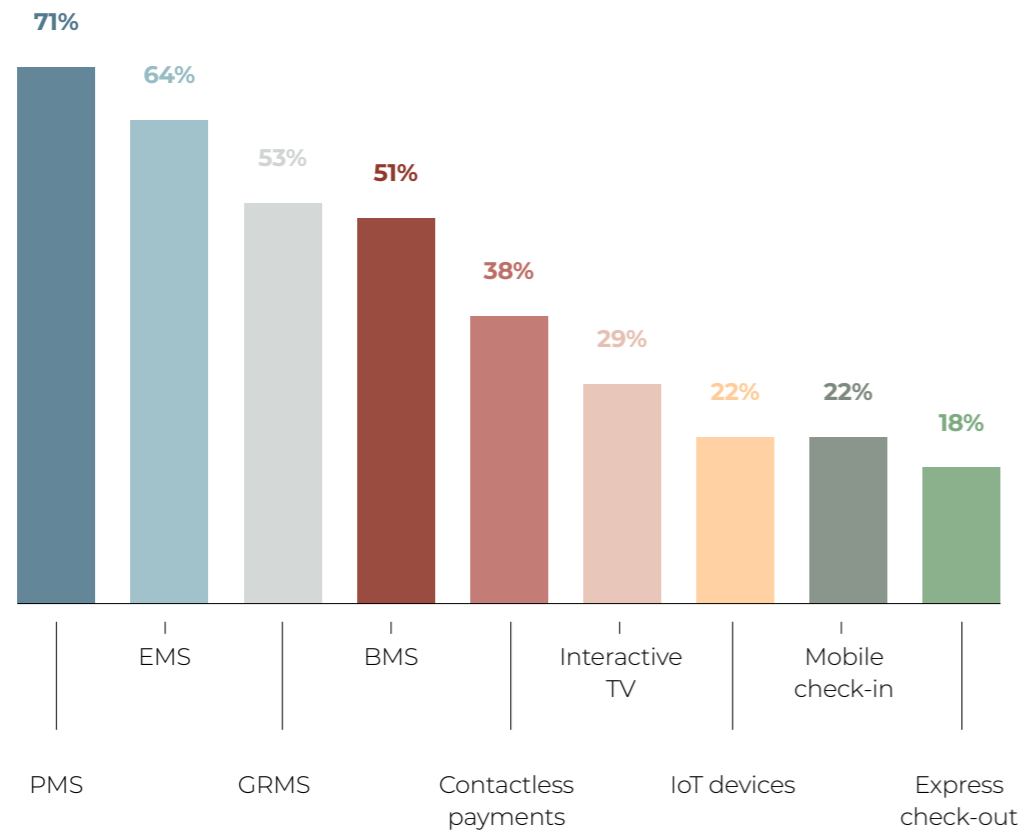
We asked Hotels what technology systems are currently in place within their facility and derived an overview of the most popular solutions in Hotels around the world.

What are the most popular technology systems in Hotels today?

Hotels' choices

71%	PMS
64%	EMS
53%	GRMS
51%	BMS
38%	Contactless payments
29%	Interactive TV
22%	IoT devices
22%	Mobile check-in
18%	Express check-out

PMS

71% of facilities have installed a Property Management System to facilitate front office activities, which generally include reservations, check-in, and check-out, room assignments, etc. The platform facilitates the organization of these processes, reducing the use of paper. It also supports the Hotel in creating customer profiles and optimizes staff time.

EMS

64% have invested in an Energy Management System to optimize consumption, monitor the HVAC system, and reduce costs. At the time of booking, the software indicates the most energy-saving rooms, considering north/south exposure and other factors. In addition, the system makes it possible to minimize waste when the guest leaves the room, without compromising comfort upon return.

GRMS

53% have installed a Guest Room Management System to offer their guests innovative and automated services, such as automatic adjustment of lights, climate, and other features. Integration with the Hotel's PMS allows them to optimize energy savings based on guest presence/absence and to coordinate staff activities without interfering with the guest experience.
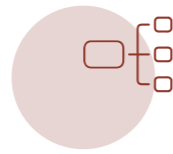
BMS

51% monitor their Hotel centrally with a Building Management System. With this software, you can control the energy consumption of your facility and the operation of mechanical and electrical equipment, such as those intended for ventilation, lighting, and power, or those related to the fire or security system.

IoT devices

22% say they use IoT devices to ensure a quality stay with a high level of personalization. Via the Hotel's mobile app, location-based information can be sent to the guest; while, by activating devices in the room via voice command, climate, lights, and curtains can be adjusted or certain services can be requested using a voice assistant.

Mobile check-in

22% made mobile check-in service available to their guests, allowing them to enter the Hotel room using only their smartphones. This faster and more efficient mode of access helped facilities comply with security regulations during the pandemic. Today, guests continue to request this service, benefiting staff with check-in operations.
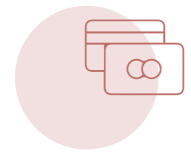
Contactless payments

38% have installed contactless payment software that enables them to obtain digital authorization to process payments, facilitating staff operations through a rapid transfer of information. In addition, mobile check-in and express check-out services, which are increasingly popular in Hotels, necessarily require the use of this system to make digital payments.
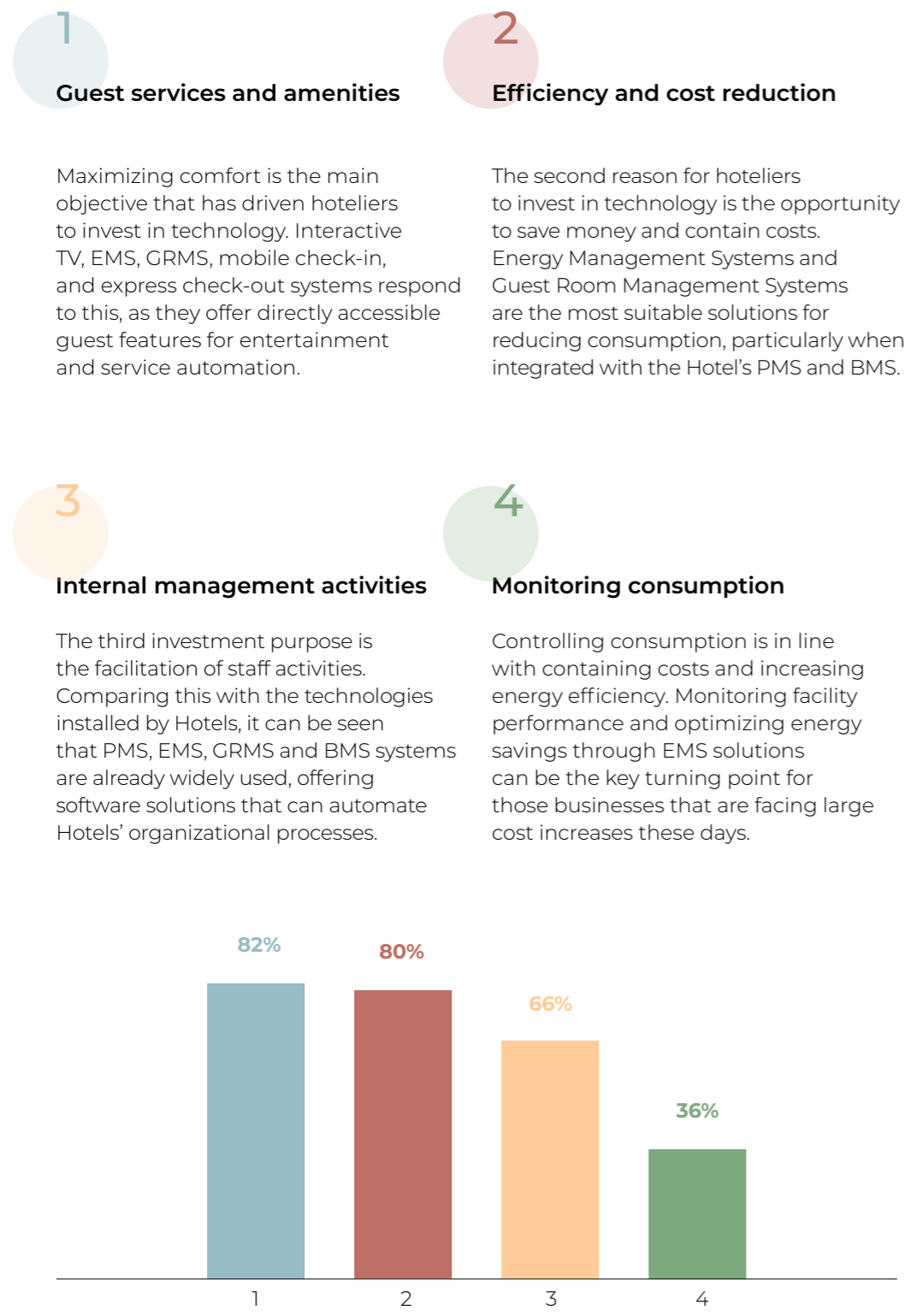
Interactive TV

29% chose an Interactive TV service to offer guests the ability to watch TV channels and use various applications on the smart TV, such as music, weather, videos, movies, and other services. More advanced systems allow guests to access their personal accounts of popular online streaming platforms to watch their favorite content directly in the Hotel.

Express check-out

18% offer express check-out service to their guests to ease the time of departure. Using the app on the smartphone or the app installed on the smart TV, the guest can view the bill for the stay without stopping at the front desk. The staff independently charges the amount to the credit card provided at the time of booking and forwards a copy of the payment via e-mail.
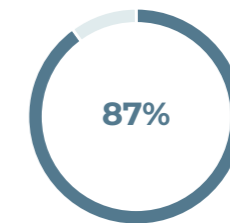
What hoteliers look for

1
Guest services and amenities

Maximizing comfort is the main objective that has driven hoteliers to invest in technology. Interactive TV, EMS, GRMS, mobile check-in, and express check-out systems respond to this, as they offer directly accessible guest features for entertainment and service automation.

2
Efficiency and cost reduction

The second reason for hoteliers to invest in technology is the opportunity to save money and contain costs. Energy Management Systems and Guest Room Management Systems are the most suitable solutions for reducing consumption, particularly when integrated with the Hotel's PMS and BMS.

3
Internal management activities

The third investment purpose is the facilitation of staff activities. Comparing this with the technologies installed by Hotels, it can be seen that PMS, EMS, GRMS and BMS systems are already widely used, offering software solutions that can automate Hotels' organizational processes.

4
Monitoring consumption

Controlling consumption is in line with containing costs and increasing energy efficiency. Monitoring facility performance and optimizing energy savings through EMS solutions can be the key turning point for those businesses that are facing large cost increases these days.

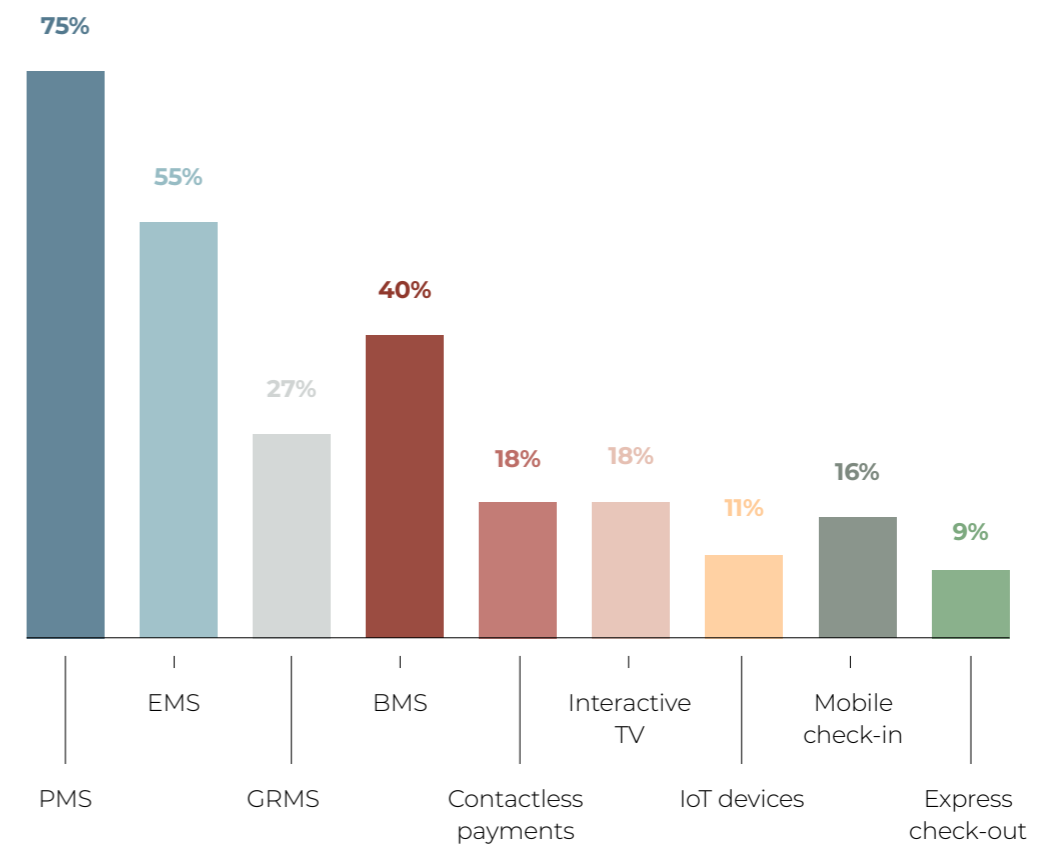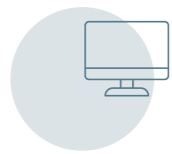Bar chart:
- 1: 82%
- 2: 80%
- 3: 66%
- 4: 36%

Smart Hotels

A 'smart Hotel' is defined as a Hotel property that has chosen to adopt technological tools, meaning both hardware and software, that can, on the one hand, streamline work and facilitate the internal management of activities and, on the other hand, be responsive to guests' needs and provide them with a first-class experience.

87% of hoteliers are familiar with this definition and say that nowadays a smart Hotel is an ideal model of a profitable business that can keep pace with the industry's technological transformation.

87%

What are the technological must-haves of a smart Hotel?

Bar chart:
- PMS: 75%
- EMS: 55%
- GRMS: 27%
- BMS: 40%
- Contactless payments: 18%
- Interactive TV: 18%
- IoT devices: 11%
- Mobile check-in: 16%
- Express check-out: 9%

#1 PMS integrations

It is not surprising to see the Property Management System in first place, chosen by **75%** of hoteliers. This solution is essential to facilitate the work of the staff through the many integrations with other software - GRMS, EMS, Interactive TV, mobile check-in, express check-out, etc. - and ensure secure service to their customers.

#2 Energy saving with EMS

In the second position, we find the Energy Management System, chosen by **55%** of subjects. The rising cost of energy is a factor that is driving the need to install this type of technology not only to monitor consumption, but also to adopt strategies aimed at savings and in line with sustainable development.
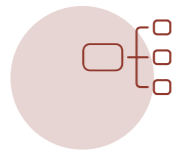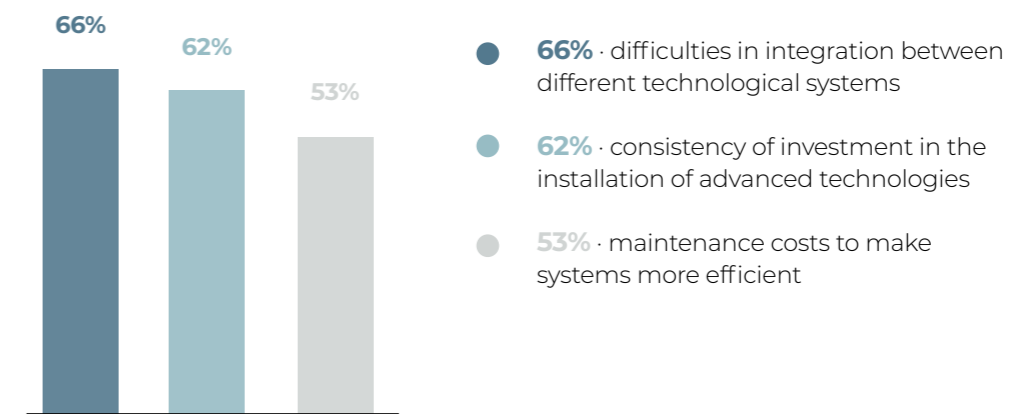
#3 Savings continue with BMS

40% of hoteliers stressed the importance of the Building Management System to monitor electrical equipment through a single platform which they can obtain real-time data and make informed decisions to optimize savings.

Savings and sustainability

46% of the subjects said they have experienced a 40% increase in facility operating expenses in the last period, and there is a good chance of an additional increase. Considering this rate of growth, it pays for Hotel managers to think about the importance of energy conservation in the near future, including responding to the pressing issue of sustainability. By saving in a smart way, you can not only keep costs down, but also protect the environment and reduce your carbon footprint. A smart Hotel is also a sustainable Hotel, responsibly committed to caring for the planet.

The Future of Hospitality

Talking about technology implies talking about important investments and choices that can determine the future of a Hotel. It is important to make the right decisions to orient the business toward new market needs.
There are several arguments that may discourage hoteliers from investing in these innovative solutions, however, it is necessary to take a long-term perspective and consider the return on investment over the years.

66% · difficulties in integration between different technological systems

62% · consistency of investment in the installation of advanced technologies

53% · maintenance costs to make systems more efficient

In response to these concerns, many countries have decided to support Hotels in the digitization process by offering them investment funds to adopt new technologies. **66%** said they have already taken advantage of such funds to innovate their business.

66%
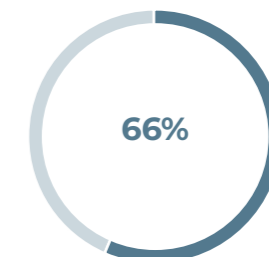
Thanks to the industry's technological evolution, more and more Hotels are in favor of adopting cutting-edge solutions to revolutionize their business. **53%** say they are not fully satisfied with their level of technology and are ready to make new investments to improve their Hotel's infrastructure and chase 2023 trends in the Hospitality market.

53%
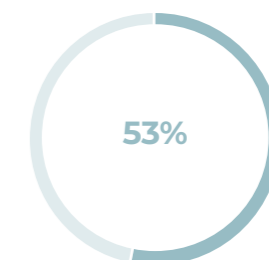
2 Sustainability and Hotels

What are the requirements?

*Hoteliers' perspectives
on sustainability
and requirements
for green development*

2050 goals

In recent years, countries are uniting in the face of the need to accelerate the sustainable development of markets. The long-term strategy defined in 2016 by the Paris Agreement is now the most important directive on Climate Action stipulated by the United Nations. The initiatives are geared toward ambitious targets, which call for a 55% reduction in CO_2 emissions by 2030, and to achieve carbon neutrality by 2050.

55%

CO_2 emissions reduction
by 2030

100%

CO_2 emissions reduction
by 2050

Climate change and resource scarcity lead us to reflect on the actions to be implemented soon. Each country is called upon to support the activities on its territory through initiatives and incentives. The change affects all sectors across the board, including the tourism market.

As much as **5%** of global CO_2 emissions are produced nowadays by activities in the Tourism sector (transportation, construction, catering, services, land promotion activities, etc.).
2% of this figure is produced directly by the Hospitality industry, which is Hotels and Hotel chains.

— **5%**
CO_2 emissions
in Tourism

— **2%**
CO_2 emissions
in Hospitality
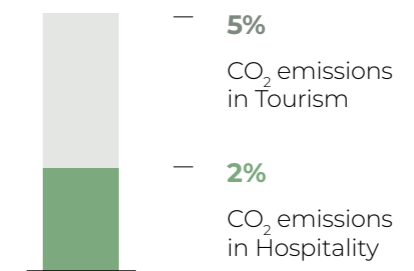
Although the Hospitality industry has already achieved concrete results, to meet the terms of the Paris Agreement it is necessary to increase investment and reduce emissions by **90%**. Sustainability today is no longer just a market trend but must become the new guiding principle of every business.
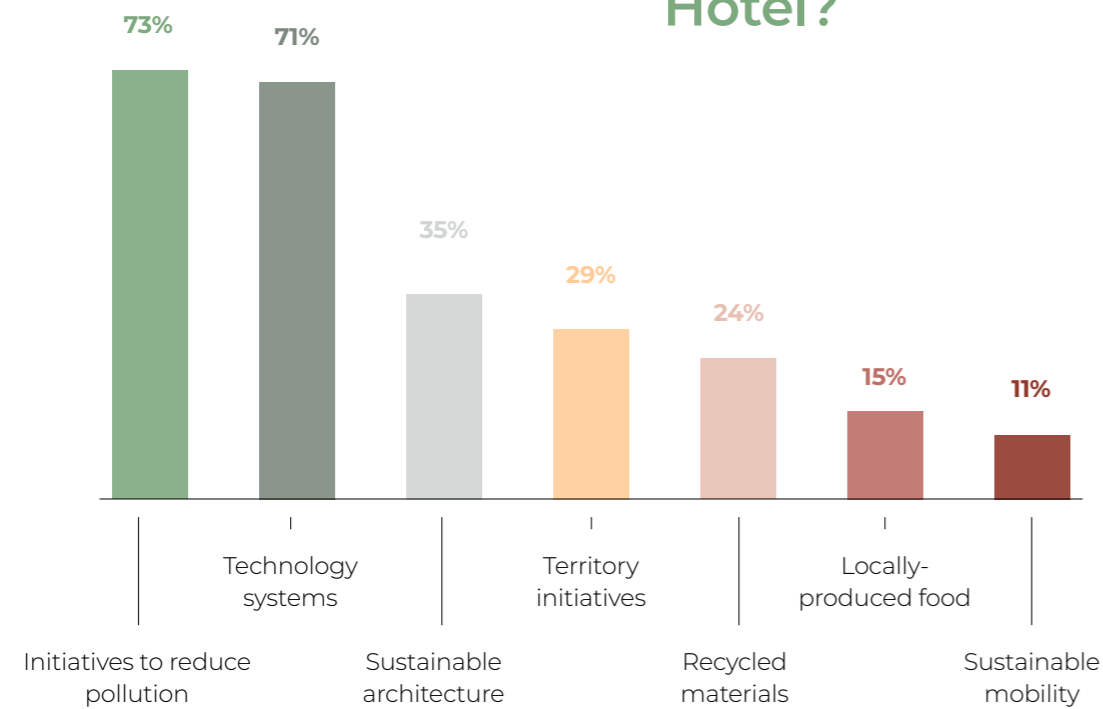
90%
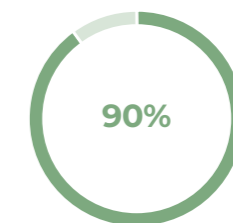
Data from UNWTO

Sustainable Hotels

A facility can be called 'sustainable' when it adopts energy-saving technologies, strives to protect the environment, and actively supports the local community. To succeed in these goals, it is necessary to rethink the internal organization of the enterprise and adopt a circular thinking model.

Below we have gathered a number of investments and initiatives that can make a difference and make a Hotel truly sustainable.

What are the must-haves of a sustainable Hotel?

- 73% — Initiatives to reduce pollution
- 71% — Technology systems
- 35% — Sustainable architecture
- 29% — Territory initiatives
- 24% — Recycled materials
- 15% — Locally-produced food
- 11% — Sustainable mobility

Circular thinking

The "produce, buy, use, dispose" paradigm now belongs to a world in decline. The new sustainable paradigm is circular and designs the solution upstream in the process, eliminating any form of waste. Today, products are used, reused, and returned to take on a new form through recycling. To take part in this evolution, it is essential that Hotels adopt this new way of thinking and acknowledge that the 'throw away' paradigm is no longer an option.


#3 Sustainable architecture

According to a report by the US Green Building Council, sustainable architecture is surpassing the traditional building method in recent years, experiencing growth in the Hospitality sector as well.

35% of our survey subjects are in favor of this new philosophy and say that a Hotel nowadays should be built or renovated through a total sustainable approach that eliminates or minimizes all forms of pollution, whether visual, acoustic, or environmental. Before any initiative to support sustainability, a Hotel must rethink its business in an integral way, making profound changes in the structure of the building itself.

Harmony with the environment

The aesthetic appearance must conform with the local culture and the surrounding natural environment. This involves design choices capable of creating territorial cohesion so that the facility is perceived as an integral part of a community.
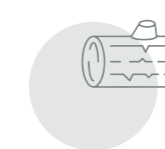
Eco-friendly materials

Aesthetic choices are accompanied using environmentally friendly materials such as wood and stone that define the iconic style of the industry. Wood is the most widely used element because of its flexibility and high thermal insulation capacity.

Energy saving

The design of a Hotel must consider the adoption of technological systems that can optimize the use of resources and energy savings, thereby limiting the building's impact on the land and the surrounding environment.

Inclusiveness and openness

The values of sustainability, of course, respect and include human rights, recognizing in Hotels the need to provide people with equal access to facilities and equal quality in the services offered.

#2   Technology systems

71% of the subjects believe that a sustainable Hotel should invest in the installation of technological systems and advanced solutions that can optimize the use of resources and offer real-time data on the facility's consumption. It is crucial for a hotelier to know the environmental impact of his or her business and to be able to identify areas to implement to foster sustainable development.

'Sold' and 'unsold'

Integration between the PMS and EMS allows the Hotel to define which rooms are 'sold' and 'not sold,' automatically setting two different consumption modes to ensure maximum comfort in occupied rooms and minimize waste in vacant rooms.

Allocation of rooms

During the reservation phase, the integration between the PMS and EMS allows the system to identify which rooms are vacant, which allows the Hotel to save on HVAC system operation based on the building's north/south exposure, humidity, or other external factors.
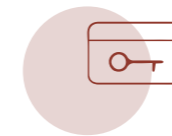
Card reader

The card reader inside the room is connected to the GRMS and enables all services in the room. When the card is removed from the reader, the system disables all functionality and avoids wasted energy, except for the power outlets that continue to power the charging devices.

Remote data access

Remote access to the cloud allows the hotelier to easily monitor and manage their Hotel's systems. Real-time data collection allows them to make informed decisions at any time with an up-to-date overview of their facility's consumption.

Adjustment of climate and lights

Using motion sensors, EMS and GRMS systems automatically adjust the climate and lights based on the 'occupied/unoccupied' status of the room. Energy savings are thus maximized when the guest is not present, while also ensuring a comfortable environment when the guest returns.

Door and window opening

Access control makes it possible to define the 'occupied/unoccupied' status of each room and record the opening of doors and windows when the HVAC system is running. The EMS sends a signal to the staff who can then check the room status and decide whether to leave the system running or turn it off.

Staff facilitation

GRMS, EMS, and PMS solutions enable Hotel staff to save valuable time while performing work tasks. For example, if a customer requests a change of towels, GRMS makes it possible to instruct the nearest attendant, saving time and resources.

Dialogue with guests

Tablets, apps, and Interactive TV systems are a great tool through which to communicate the Hotel's sustainable choices, such as telling guests about the sourcing of food from local farms or informing them about the possibility of renting environmentally neutral vehicles.

#1   Initiatives to reduce pollution

73% of individuals believe that a sustainable Hotel must demonstrate a concrete commitment to reducing waste and pollution caused by its operations. This commitment takes the form of a long-term strategy geared toward responsible choices, initiatives, and actions.

Territory initiatives

Each Hotel has a responsibility to support the area and the community in which it is located, either by promoting tourist activities or by choosing the labor of local businesses, which can offer service with shorter waiting times and minimal impact caused by transportation.

Materials recycling

The internal organization of a Hotel should be designed in a circular way to reduce waste and encourage recycling, reuse, or recovery of materials. In addition, it is the Hotel's responsibility to inform guests of such sustainable choices and encourage them to participate through recycling.

Locally-produced food

A sustainable Hotel must offer its customers products that are always fresh and wholesome, locally grown and produced, thereby reducing pollution from the export, transportation, and import activities that it takes to procure food and drink.
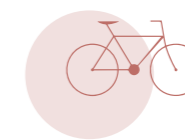
Sustainable mobility

A sustainability-conscious Hotel should make charging towers available to its guests for those who already own an electric car, or it should offer the possibility of renting environmentally neutral means of transportation, such as bicycles, scooters, or electric vehicles.

Use of paper

Thanks to process management and automation software, a Hotel can reduce or even eliminate the use of paper in carrying out a variety of operations. Today, reservations or check-in and check-out activities can be done directly online or through mobile apps.

Use of plastic

The Hospitality industry has shown a concrete commitment to reducing plastic use, favoring environmentally friendly materials and products without packaging. By 2020, 108 million fewer plastic packages were recorded inside Hotels (data from OECD).

Clean energy

According to data collected by the UNWTO, Hospitality is the most energy-consuming sector in the entire Tourism industry. The installation of solar panels or wind turbines allows a Hotel to produce clean energy to power its facility and reduce, or even eliminate, its environmental impact.

Water consumption

A Hotel must not only ensure that it minimizes water waste through efficient infrastructure, but it can also choose to make a difference by initiating graywater recycling, collecting rainwater, or growing plants that can restore soil moisture.

# 3 Sustainability and People

What are they looking for?

Definition of Sustainable Tourism and hoteliers' perceptions of the new and growing trend

Traveling in 2023

The pandemic and the long period spent at home have led us to reflect on the importance of travel and unique experiences, giving us the impetus we need to seek out breathtaking adventures and experience new emotions.

Testifying to this fact is Booking.com finding that **65%** of Americans are currently planning the so-called 'GOAT,' or trip of a lifetime ('greatest of all time'). This is an unparalleled experience where everything becomes part of the trip, not only the destinations, but also the Hotels, communities, transportation, food, etc.

65%
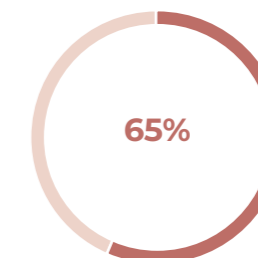
Sustainable Tourism

In recent years, travel is taking on a profound value related to a person's self-realization process. Having new experiences is equivalent to discovering new parts of oneself, embracing foreign cultures, and becoming a citizen of the world. This entails adopting a sustainable travel philosophy that allows one to discover new destinations with the utmost respect for local tradition. This new form of 'Sustainable Tourism' has been defined by the World Tourism Organization as:

> **" tourism that takes full account of its current and future economic, social, and environmental impacts, meeting the needs of visitors, industry, the environment, and host communities.**

Smart and sustainable Hotels represent the ideal solution for this new type of tourism, as they respect the territory in which they are located and produce the least impact on the environment, thanks to the installation of advanced technological systems aimed at reducing the structure's consumption.

According to Booking.com data, as many as **61%** of travelers are currently planning to stay at one or more sustainable facilities during the coming 2023.

61%
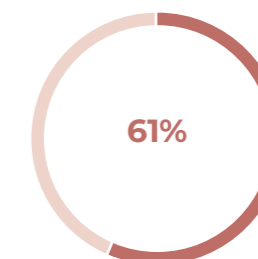
Responsible traveler

The responsible traveler is one who discovers and loves the cultures they encounter, going in search of unusual destinations unrelated to mass tourism. They are aware of what they produce with their passage and are careful not to deface the place they visit with their own culture. They carefully plan every aspect of the trip, choosing means of transportation with minimal impact and accommodations that demonstrate a concrete commitment to environmental protection and support for the area.

Hoteliers' perceptions

Identifying customer needs is key to standing out within a highly competitive market. Travelers around the world are moving toward the new values of Sustainable Tourism, and it is time for Hotels to make this shift in order to offer them solutions that respect the principles of sustainability.

Relying on Booking.com's statistics on travelers' current stated focus on sustainability, in our survey we delved into the perspective of hoteliers to understand their perceptions of tourism.

Sustainability awareness

73% of travelers say they are sensitive to the issue of sustainability when planning a trip. Almost all hoteliers, **94%**, underestimate the importance of this aspect.
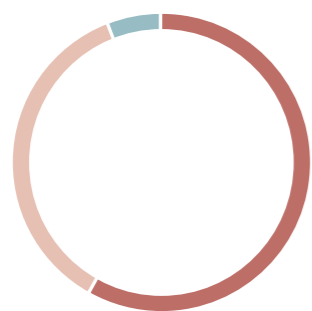
58% · hoteliers state that the percentage of sustainability-conscious travelers does not exceed 35% of tourists worldwide

36% · hoteliers state that responsible travelers are 50%

6% · hoteliers state that responsible travelers are more than 70%

Sustainable Hotel choices

61% of travelers seek sustainable accommodations with the goal of having immersive experiences and reducing their impact on the environment. **72%** of hoteliers do not recognize the relevance of this issue to the future success of their business.

36% · hoteliers who believe only 10% of travelers choose sustainable Hotels

36% · hoteliers who believe only 20% of travelers choose sustainable Hotels

27% · hoteliers who believe more than 35% of travelers choose to stay in sustainable Hotels

Searching for information on the web

40% of travelers have difficulty searching online for establishments committed to sustainability. Hoteliers' lack of awareness to the growing number of responsible travelers is one factor influencing this.
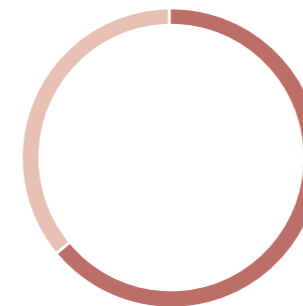
64% · hoteliers say it is difficult to search online for sustainable facilities

36% · hoteliers state that it is not difficult to search online for sustainable facilities

Communicating sustainability

The search software most used by travelers to choose their destination is undoubtedly Booking.com, which is also a benchmark for industry research and support for sustainable initiatives. In fact, as of 2021, the site has promoted among its search filters the 'Sustainable Travel Badge,' which can be requested by all accommodations that actively engage in green initiatives. A smart and sustainable Hotel must provide its guests with the necessary information to enable them to make responsible travel choices with minimal environmental impact.

4 Bright Journey

Looking for smart destinations

*Telkonet's project
created to support responsible
travelers in choosing
sustainable Hotels*

bright journey

— share and light on —

The project

The topic of sustainability is increasingly relevant in the world of Hospitality today and requires a certain level of education and awareness. It is important to understand the choices and initiatives that can make a difference within Hotels and provide travelers with useful tools to assess the commitment of facilities and make responsible travel choices.

The Group founded the 'Bright Journey' project to support the responsible traveler in finding iconic and sustainable destinations around the world. The project is developed within the Instagram profile and narrates the travel experiences of 7 ambassadors, chosen for their professional expertise in the Hotel industry and their influence as digitally active travel bloggers.
The all-female narrative gives space for a woman's perspective and provides added value to the story.
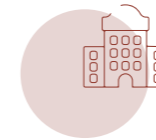
Where do we travel?

Our destinations are iconic
and sustainable Hotels that have been
selected based on the technological
systems installed to increase energy
savings and reduce emissions.

How do we do it?

We share photos, videos,
and experiences in a direct
and unfiltered way, to collect within
our profile useful tips and guides
for responsible travelers.

What do we tell?

Our task is to define the technological
level of the Hotels and to deepen
the link between the installed
advanced solutions and the sustainable
development of the facilities.

What is our purpose?

Our goal is to spread
a new perspective and make
travelers aware, creating
a united community focused
on sustainability.

"

We started a travel story with the 'Bright Journey' project,
to help raise guest awareness of the use of technology
and describe how the sustainability in Hotels
also comes through the use of technology and to make
Hotels themselves to become a smart destination.

Piercarlo Gramaglia
CEO of Telkonet Group

telkonet