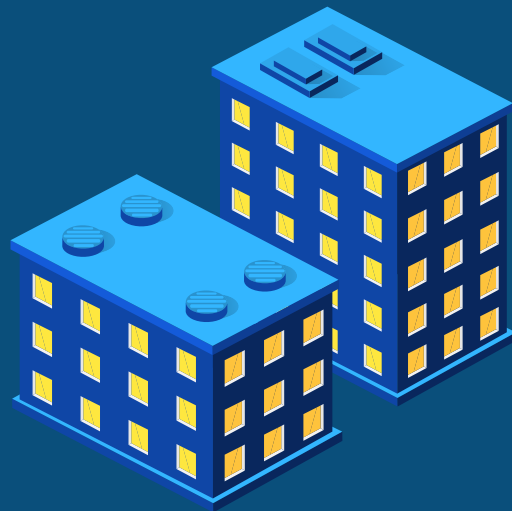


Smart buildings and automated security

White Paper

How sensors, automation and the IoT enable buildings to be more convenient, efficient and sustainable in a modern, connected world.



GUNNEBO®

Contents

What is IoT?	2
What is a smart building?	3
The development of IoT	4
Access control for smart building status	5
Remote connectivity	6
Data and privacy	7
Smart buildings > just buildings	8
Looking to the future	9
In conclusion...	10

What is IoT?

A major development for a modern society

A global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies.

The internet of things (IoT) is a term first coined by Kevin Ashton in 1999 to describe a system where the Internet is connected to the physical world via ubiquitous sensors.

More than 20 years later, IoT has become a common phrase used worldwide in everyday language.

A major development in modern society, industry and home life, the internet of things has changed our way of conducting our business through better information and improved opportunities.

Via machine produced data and its communication and transfer to connected devices, IoT facilitates automated action, insights into statistics and analysis and machine learning to improve human experience and aid user activity.

There are 27 billion IoT devices in the world today

ABI Research suggests that IoT hardware and connectivity revenues are growing at 10-20% annually, while apps, analytics and services are growing at 40-50% annually.

The IoT clearly includes M2M (referring specifically to communication directly between devices), but broader definitions of IoT technologies also include ambient intelligence and smart environments.



What is a smart building?

Deconstructing the concept

“

We need to operate and manage buildings based on outcomes, not output. Building owners and operators should not “buy” IoT; they should purchase solutions to specific problems where IoT components are part of a solution.

”

A smart building is any structure that uses automated processes to automatically control the building's operations including heating, ventilation, air conditioning, lighting, security and other systems. A smart building uses sensors, actuators and microchips, in order to collect data and manage it according to a business' functions and services. At its most basic, a smart building is one that uses technology to share information about what goes on in the building between systems in order to optimise its performance.

Buildings that aren't 'connected' are the same buildings as they have been for decades.

They provide the essentials like shelter, temperature controls and safety at the same efficiency level as they have been doing for as long as these systems were introduced.

Smart buildings (either new builds or converted old buildings) are [living ecosystems that adapt and change with intelligent and adaptable software at its core.](#)

A smart building makes its occupants more productive with lighting, thermal comfort, air quality, physical security, sanitation and others at a lower cost and with less environmental impact than unconnected buildings.

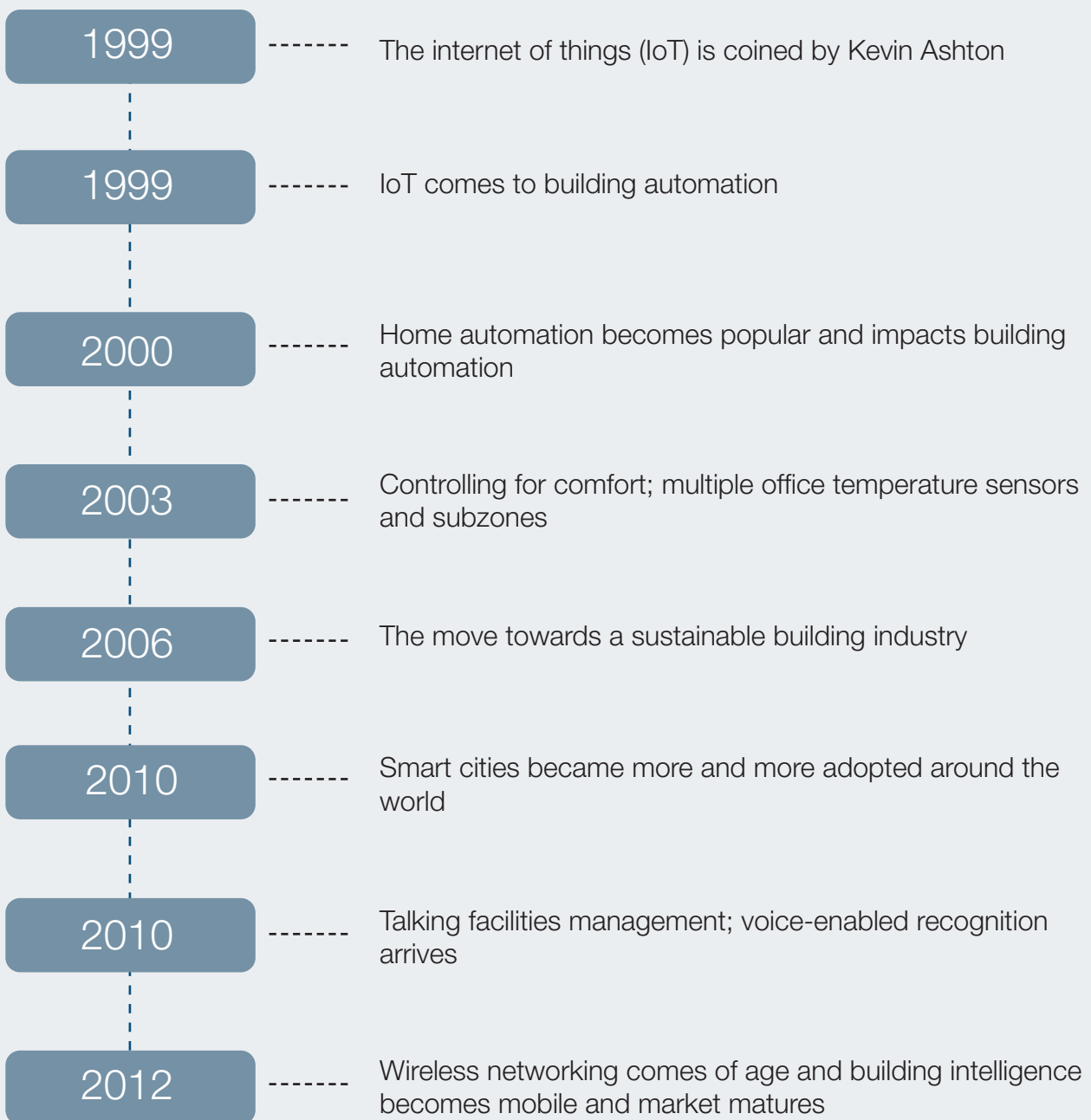


The development of IoT

20 years in the making



IoT is as much about behavioral changes and business opportunity, not just technology. Realizing its potential starts with understanding the value and contributions it brings.



Access control for smart building status

Security that works smarter not harder

The rise in innovative and smart technologies has created a growing need for both physical and network-based access controls. The infrastructure of an existing intelligent facility can easily be a host of elements, such as cloud, remote access, and data sharing and analysis, and these become crucial in reaping the benefits of a connected and converged space.

By integrating access control into existing building systems and operations using IT-aided infrastructure, smart controls and sensors, data transmission can occur which can transform any given site into a living ecosystem, communicating with other devices to facilitate predictive analytics and diagnostics in order to achieve better management and optimization of these buildings.

A living ecosystem using smart controls, sensors and data transmission



The entrance control industry is experiencing a paradigm shift from traditional, on the premises, standalone physical barrier work access control, to more adaptable, fluid, remote and resourceful solutions.

These remote and network-based security solutions communicate with other devices, joining up the physical with data and intelligence.

Smart access control takes advantage of readily available data derived from user experience for more intelligent insights into a greater, more robust security approach.

Remote connectivity

Business security 24/7

On premises validation requires office occupants and IT administrators to be physically present to control access management or resolve any issues, limiting the functionality of the gate compared to other more technologically advanced systems.

Allowing access on-demand in some instances is only available at a close distance whilst on the premises. Entrance control with remote connectivity allows full control of assigned gates without needing to be physically in the immediate vicinity, so that organisations can now leverage remote management services to maintain their security now and well into the future.

More people are working remotely with more flexible working hours; security solutions must adapt to the changing environment.

Remote monitoring connectivity means...

- Improved control and enhanced protection
- Circumvents location issues
- Convenience of use and increased mobility
- Maximise efficiency
- Only requirement for action is a smartphone which is always at hand
- The device used to report issues being the same device used to control access, simply switch applications
- Allows 24/7 access management



Data and privacy

For a smart and securely connected world



The significant barrier to smart building growth is the growing cyberattack. Thus, it is essential to implement operational contingent plans to ensure the safety of connected buildings



The development of the IoT means that companies preserve privacy. Among other things, this involves adopting [privacy and data security best practices](#), only collecting consumer information with express consumer consent, and providing consumers with access to their data.

The information collected from sensor systems may or may not be freely accessible on the Internet (Open Data), and the data transmitted may or may not cross the public Internet.

Laws and regulations on data will need to be reconsidered carefully in view of the IoT — in terms of how data is obtained and can be used, how long data can be kept, as well as limits on access to this data by third parties.

When all stakeholders are included in active dialogue, the IoT represents a promising opportunity for more coherent policy-making and implementation.

Security professionals

When contemplating introducing IoT to your building, it would be a good idea to consider enlisting the services of an organisation who will take your security - both physical and network-based seriously.

A company with a long and proven history working in the security industry will be able to work with you to provide knowledge and experience, recommend best practice and safeguard your premises and interests for the most effective IoT introduction.



Smart buildings

>

just buildings

The impact of smart buildings on the market and day to day life should be reviewed in order to understand its effects and predict the direction of future growth.

According to IBM Corporation report 2019, implementing advanced technology such as artificial intelligence AI and internet of things IoT helped reduce energy usage by 40% and maintenance costs by 10-30%. In Deloitte's report, buildings using smart tech and IoT devices saw 70% energy savings in three years.

Identify opportunities

With machines capable of collecting a huge amount of data, that can inform performance, maintenance and other issues, IoT offers the opportunity for management to optimize their processes quickly, efficiently and automatically.

The demand for smart buildings

The smart building market is projected to grow from \$67.6 billion USD in 2021 to \$265.4 billion USD in 2028, at an annual growth rate of 22%.

The emergence of 5G technology and growing smart city projects are expected to create lucrative opportunities worldwide in the growth of the market over the next decade.

The reopening of commercial offices post-pandemic is expected to boost the demand of smart buildings to create a safe environment for all stakeholders.

Smart access control, temperature measuring devices and space optimization solutions are all likely to fuel an increased demand for smart building solutions in life after the pandemic.

Looking to the future

Predictions for beyond 2020s



Future automation will be a full embrace of IoT. Systems will be smarter, self-learning, innovative and sophisticated. They will automatically configure and integrate new equipment so they can optimize themselves, self-manage and self-heal while reinventing purposeful, productive and desirable buildings.



Optimized systems

What was once a focus on decreasing energy expenditure, increasing reliability of equipment and reducing overall costs, has evolved far beyond, taking on a new form that also focusses on future-proofing systems in place and developing new ways of living and working further than was ever previously considered.

Optimized systems in the future include further enhanced asset performance for even greater interconnectivity between systems, truly connected buildings and predictive and preventative maintenance so business simply does not stop.



Adapting to the next normal

As we look to the future of smart buildings, we consider the ways in which IoT can assist in the pandemic recovery. Currently in the new normal, what does the next normal look like?

We could see reservation of space and other controls in the office via employee smartphone, automatic limitation of areas when a person threshold is reached, occupancy data resulting in automatic functions such as HVAC, and increased use of remote services. All of these made possible by sensors, connected tech and device data sharing.



In conclusion...

Throughout this paper we have recognized that a growing trend is emerging. Business owners are realizing that there is a technological paradigm shift, with adoption of smart technology in both homes and business premises high.

This all underpinned by the Internet of Things which has made it possible to link up devices to automatically control, manage and maintain systems throughout the building with the help of intelligent sensors.

This sharing of data which was previously passive and stagnant joins up multiple equipment and machines to form a cohesion - **a teamwork of connected devices which can all harness the power of this wealth of data.**

The benefits of this being that computerized systems can identify trends and issues far more **accurately and efficiently** than any person can. The reports generated from smart technology can provide rich insights to inform decision makers and improve the efficacy of their changes better than was ever managed before.

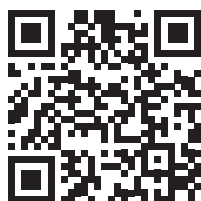
The best part of all? All of this smart activity happens automatically in the background, without humans ever thinking about it. Preventative maintenance being just one area which in the hands of smart technology will identify before a fault arises. As a result, corrective action can take place **ahead of time and enable seamless and truly efficient business activity.**

Security efforts with the help of automated machines are improved, with **IoT allowing remote monitoring, 24/7 access and heightened security interoperability.** We only see all of these things moving further into the realm of smart technology integration, 2020s and beyond.

This transformation is still evolving, and we might not have the full picture for a good while, but we can make educated predictions based on what we now know.

Smart buildings and automated security

A White Paper



info@gunneboentrancecontrol.com
www.gunneboentrancecontrol.com

Gunnebo Entrance Control Ltd
The Gate House, Ashdown Business Park
Michael Way
Maresfield
East Sussex
TN22 2DU
United Kingdom

GUNNEBO[®]