

**SIEMENS**

*Ingenuity for life*

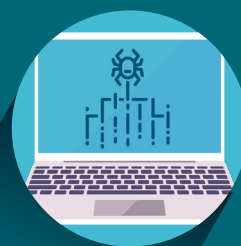


Can you afford  
not to invest in smart  
building technology?

[www.siemens.co.uk/finance](http://www.siemens.co.uk/finance)

# Can you afford not to invest in smart building technology?

There are a number of external factors that can impact the success and productivity of your business, and you might think many are outside of your control. But here Mark McLoughlin, Key Account Manager - Siemens Industries and Markets, Siemens Financial Services, examines the technology available to mitigate 5 different threats and how finance can help organisations access them.





## 1 Rising energy costs

Research suggests that businesses may be paying 50% more in 2020 for power than they were in 2016.<sup>1</sup> Since energy is a necessary expense, businesses may find they are unable to invest in activities such as developing new product lines, employing new staff or acquiring new equipment, because funds are needed to meet rising energy costs.

### The technology:

Non-domestic buildings are responsible for between 10% and 15% of carbon emissions.<sup>2</sup> Smart buildings have the potential to save approximately 15% to 25% on energy costs.

Smart controls give buildings a “central nervous system” that balance and reconcile

competing interests such as energy minimisation, occupant comfort and grid stability. Today, fire protection, climate control, ventilation, lighting and video surveillance are often controlled separately. Modern, sophisticated management stations, on the other hand, allow all building systems to be integrated into a single platform.

Return on investment (ROI) from smart building controls will vary, depending on external climate, cost of power, and other factors. For example, our research<sup>3</sup> shows that in the manufacturing sector cost savings from energy optimisation programmes are in the region of at least 25%, compared with just 6% actually achieved from reduced energy usage in UK manufacturing in the last five years.



## 2 Illness and staff absence

**Sick staff cost British firms £77 billion annually in lost productivity.<sup>4</sup> Presenteeism – when employees feel obliged remain at work while sick – leads to added pressure and anxiety for workers,<sup>5</sup> and potentially increased sickness levels as germs spread around the workplace.**

### **The technology:**

There are a number of building technologies designed to improve the mental and physical wellbeing of occupants.

Produced by UK Green Building Council and issued by the World Green Building Council, a report entitled 'Health, wellbeing and productivity in offices: the next chapter for green building' highlights that good indoor air quality and lighting conditions, thermal comfort, and the minimisation of unwanted noise are among the key elements of healthy and productive workplaces.<sup>6</sup>

Smart building management systems can help to meet these requirements, for example by controlling a building's temperature, varying it

across different rooms or areas, depending on its use and the desire of its occupants. This can automatically adjust as the temperature changes outside.

Lighting levels can also be localised according to use of a particular space and the natural light it receives. LED technology not only saves on energy consumption, but it can also offer sophisticated colour and brightness combinations to manage occupant comfort, mood and improve staff concentration and productivity. Human-centric lighting seeks to optimise ideal circadian cycles by reproducing daylight as closely as possible, and adjusting automatically to maintain that resemblance through different parts of the day.<sup>7</sup> It works by adjusting the light colour quality - comprising correlated colour temperature (CCT) and colour rendering - as well as its intensity.<sup>8</sup>

### 3 Fire and false fire alarms

**It is estimated that by 2020 UK PLC could stand to lose as much as £10 billion to commercial and industrial fires.<sup>9</sup> In addition, false fire alarms cost the UK economy £1bn a year.<sup>10</sup>**

#### **The technology:**

Intelligent solutions, such as Advanced Signal Analysis (ASA) developed by Siemens, aim to determine the cause of the emission enabling the system and its operators to react accordingly. When the fumes hit the chamber of an ASA detector, the signals by the different sensors of the detector are processed using

sophisticated algorithms to determine the particular 'signature of the emission. By finding a match, the system can determine exactly what's causing the fumes. If the system detects fumes such as cigarette smoke, deodorant fumes, or burnt toast it can give the operator time to manage the situation before instigating a full alarm, and potentially building evacuation and alerting the fire brigade. This means that when the detector is activated, occupants know that it's a real emergency and can act accordingly.





## 4 Criminal activity

According to the Federation of Small Businesses, business crime directly affects between a quarter and a third of UK businesses annually.<sup>11</sup> Business crimes include anything from burglary and damage to property, to financial crimes like fraud, embezzlement and cyber crime. The 2018 Cyber Security Breaches Survey found 19% of charities and 43% of businesses had reported cyber security breaches or attacks in the preceding 12 months. The average financial impact each time was £3,100 for businesses and £1,030 for charities.

### The technology:

Buildings can protect against physical (rather than digital) crimes with increasingly sophisticated security systems. Improved pixelation can mean images are captured quicker, and 360 degree cameras mean that one camera can be used where several were once needed. If a security operator needs to follow someone's movements, systems can prompt the user as to which camera will pick the subject up next. Such systems are becoming increasingly intuitive and therefore require less staff training – and less time and money to implement.

Sophisticated access-control solutions allow dynamic remote control of all areas of a building, as well as user/visitor identification. An interoperable system of video surveillance, access control and intrusion detection help security personnel to view any area whenever a door is opened or an alarm is triggered.

In order to protect effectively against cyber threats, physical and digital preventative measures need to be integrated. Physical weakness can potentially expose a building to cyber crime, and therefore the first step to prevent cyber attacks involves general physical security – including physical access to the facility, organisational measures such as security policies, and monitoring the facility for anomalies that could indicate a cyber attack.

Secure products and solutions have been developed that can respond to a fast, complex, and ever-changing threat landscape. A “secure by design” approach integrates cradle-to-grave activities. By adhering to the main pillars of prevention, detection, and reaction, products, solutions, and services are continually developed to prevent and respond to threats and attacks.<sup>12</sup>

*The benefits of smart building technology, and the potential savings and benefits that it can bring is one thing; finding practical, affordable and sustainable ways of achieving smart-building conversion is another.*

Pioneering CFOs are looking to optimise their capital deployment by moving tangible investments – such as smart-building conversion and technology investment – away from capital expenditure (CAPEX) on the balance sheet and into operating expenditure (OPEX). Effectively, the supplier of a “service” such as smart-building conversion deploys financial techniques and solutions that remove the need to devote own capital, bundling the cost of technology upgrades into a monthly fee across an agreed-upon contractual period. After the contract ends the owner continues to benefit from the new technology. In this way, cash flow is used more efficiently as the investment is not capital intensive and funds can be conserved for strategically important development activities. Smart-building technology still delivers attractive cost and capabilities benefits that organisations wish to benefit from, even if they are reluctant to invest their capital to this end. This is leading to the rise of a concept called “Smart Buildings as a

Service”<sup>13</sup> – sometimes called “servitisation.” Landlords and owner-occupiers are conserving their capital for growth and improvement initiatives and are choosing to let integrated technology-service-finance companies fund the digital transformation of their buildings. There are a variety of modern financing models that allow this to happen, but the most attractive of these involves smart solutions partners that are able to do this at low or zero net cost for the building’s owner.

Smart building technology brings a number of benefits including significant cost savings from reduced energy usage, for example, as well as improved staff productivity and better security. Nevertheless, making the initial investment in smart building systems is a challenge. Luckily, smart finance solutions exist that make the investment sustainable and harness the savings made to make smart building technologies accessible.

### Siemens UK:

Sefton Park  
Bells Hill, Stoke Poges  
Buckinghamshire  
SL2 4JS  
Tel: +44 (0) 1753 434000  
Fax: +44 (0) 1753 434499  
[info.sfs.uk@siemens.com](mailto:info.sfs.uk@siemens.com)  
[www.siemens.co.uk/finance](http://www.siemens.co.uk/finance)

### Follow us!

 [linkedin.com/Siemens Financial Services](https://www.linkedin.com/Siemens-Financial-Services)  
 [@Siemens\\_SFS](https://twitter.com/Siemens_SFS)

Siemens Financial Services is a leading provider of innovative finance solutions to UK businesses and public sector organisations. With more than 250,000 customers Siemens has arranged finance for 90 of the current FTSE 100 companies and more than 50% of NHS trusts and local authorities.

Active in a wide range of markets, Siemens provides financial solutions ranging from £1,000 to many millions for a diverse range of financing needs, including equipment and asset finance, treasury services and working capital finance. It is independently recognised as a business finance leader in a number of its core markets.

With offices throughout the UK, Siemens Financial Services has more than 260 employees within its UK Commercial Finance business which is headquartered in Stoke Poges, Buckinghamshire. Siemens global headquarters is in Munich, Germany.



Siemens Financial Services is a member of the Finance and Leasing Association.

If you would like to understand how SFS will use your data if we receive an enquiry or credit application, please visit our Fair Processing Notice at [siemens.co.uk/fair-processing-notice](http://siemens.co.uk/fair-processing-notice).



## References

- 1 The Energyst, 'Inenco: business power prices to rise 50% over four years', 7 November 2018, <https://theenergyst.com/inenco-business-power-prices-rise-50-four-years/>
- 2 See for instance: Committee on Climate Change, various; World Bank Group, Cities and Climate Change, 2010
- 3 Siemens Financial Services, 'Saving not Spending', [www.siemens.co.uk/energyservice](http://www.siemens.co.uk/energyservice)
- 4 Consultancy.org, 'Sick staff cost British firms £77 billion annually in lost productivity', 19 January 2018 <https://www.consultancy.uk/news/15551/sick-staff-cost-british-firms-77-billion-annually-in-lost-productivity>
- 5 Ibid
- 6 UK GBS, 'Health, Wellbeing and Productivity in Offices: The next chapter for green building', 21 September 2017 <https://www.ukgbc.org/ukgbc-work/health-wellbeing-productivity-offices-next-chapter-green-building/>
- 7 Forbes, 'Is Your Lighting Making You Sad Or Sick?', 29 January 2019 <https://www.forbes.com/sites/jamiegold/2019/01/29/is-your-lighting-making-you-sad-or-sick/#728ea1576590>
- 8 LEDs Magazine, 'Human-centric lighting is the next step in LED design and control', 17 October 2017 <https://www.ledsmagazine.com/articles/print/volume-14/issue-8/features/human-centric-lighting/human-centric-lighting-is-the-next-step-in-led-design-and-control.html>
- 9 Means of Escape, 'What is the true cost of fire?', <https://www.means-of-escape.com/content/what-true-cost-fire>
- 10 Planning and Building Control Today, 'False fire alarms cost businesses one billion a year causing disruption and loss of productivity', 15 March 2017, <https://www.pbctoday.co.uk/news/health-safety-news/false-fire-alarms-cost-businesses/31593/>
- 11 The Federation of Small Businesses (FSB), 'Crime against business', <https://www.fsb.org.uk/standing-up-for-you/policy-issues/business-crime/crime-against-business>
- 12 Frost & Sullivan, Protecting Business Continuity Against Cyber Threats – a Siemens Building Technologies whitepaper, 2018
- 13 See, for instance: ITEA, BaaS "Building as a Service" as technical enabler for future building automation ecosystems, 2016