

## The Use of Technology for Sustainability in FM

Insights from the SFMI Leaders Forum March 2023







The SFMI's purpose is to drive Environmental Social Governance (ESG) leadership within the FM industry by delivering sustainable services that provide a positive benefit across the value chain. The Leaders Forums are collaborative discussions held with our Partners to share experiences and develop a forward pathway. Our last session, with a focus on Technology, was held in February 2023. We've included some of the quotes from attendees through this report.

Technology is already readily available and used to support and deliver FM services. Looking into the future, greater automation is required to deal with labour shortages, improved sensors and data will provide real-time monitoring, and the upskilling of teams will be needed to better utilise the technologies and equipment. The Forum discussed how the FM sector can adapt to make the best use of technology in the future.

#### **Leaders Forum Attendees**

Arcus Facilities Management BAM Facilities Management Bouygues Energies & Services Churchill Emcor UK Equans UK Manchester University NHS Foundation Trust Mitie Facilities Management Sewell Group UCEM University College of Estate Management VINCI Facilities



By the end of 2022, the UK tech sector was leading in Europe, with a market value of \$1 trillion. The third biggest in the world after the US and China. technation.io

**Technology and sustainability** are often cited as the main forward issues for the FM sector to deal with. The two are usually viewed as separate issues, yet can, and should be, perceived as reinforcing activities working together and supporting each other.

Technology is already widely implemented across the FM sector to deliver a variety of services. It holds the potential to provide solutions, for example, through improved sensors and data facilitating real-time monitoring, and increasing automation, thus providing a solution for labour shortages. Upskilling teams will allow for better utilisation of the technologies and equipment. Moreover, in the future, we are likely to see movement from asset level remote monitoring at an individual level, to digital and cognitive technology at a combined activity level, to augmented operations at a space level and finally to AI at a whole building resiliency level.

UK tech businesses raised £24 billion in 2022, the most of any country in Europe.

<u>gov.uk</u>



#### How Technology is Being Used Today

In the property sector, technology is being used to improve ESG performance in a variety of ways: reducing costs, improving building resiliency, decarbonising buildings, improving energy efficiency, providing data to comply with regulations, and generally enhancing the workplace experience.

The mindset regarding technology is changing not just as an enabler, but as a service itself. The examples explored below prove the increasing importance of technology.

**The use of drones** for maintaining buildings can help with a number of functions, for example 3-D Modeling for Site Surveys, Aerial Photography for Roof Inspection and Aerial Infrared Services as well as general maintenance and damage assessment.

♦ Thermal cameras offer an efficient and easy way of checking properties for heat loss, air gaps, cold spots, and insulation gaps. This helps with managing insulation issues and therefore also energy efficiency. Thermal imaging can also be used to identify roof leaks, as well as other issues with water collecting in one place. An Internet of Things (IoT)-based predictive maintenance solution can detect anomalies and perform a root cause analysis that may prevent production delays and equipment failure.

## "FM is data rich, but insight poor."

• The adoption of *IoT-enabled equipment* by facilities management is well developed, but faces scepticism about the impacts on operations and occupant experience. Typically, FM needs to upgrade or retrofit legacy systems (such as BMS) before facilities can benefit from IoT. Using IoT sensors, facilities management technologies are collecting data about the workplace and the workforce, which can help FMs make adjustments faster.

• **Energy efficiency** can be achieved by the implementation of IoT devices, such as motion sensors for lights and automated temperature controls, enabling more visibility into energy usage and management.

**Occupant experience** could be a contributor to the adoption of IoT. For example, you can easily adjust temperature and lighting based on occupancy. And when these technologies are connected to an integrated workplace management system (IWMS), all of that data is consolidated into a single platform where you and your team can make better-informed decisions.

• Water Leakage reduced by a combination of smart devices and cloud-based software allowing remote monitoring of water consumption. Together with smart taps and toilets this could minimise unnecessary use of water and identify leaks.

**Robotic automation** is well suited to take over repetitive and hazardous tasks such as cleaning and security. Applications are still in early stages, with widespread adoption aligned with suppliers with experience with deployment and maintenance of robots.

• **Augmented reality** is still in the early stages of development for facilities management. Smartphones and tablets are dominant in the hardware market, while wearables are still in low levels of market penetration.



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# How Technology Supports

Technology can play a significant role in supporting ESG tracking by providing the tools to collect, analyse and report on data related to a company's ESG performance. Technology has enabled several pathways to improve our ESG performance, for example:

#### **Asset Management**

Real time asset monitoring, fault detection and diagnostics; asset optimisation Reduced maintenance / supplier impacts and increased asset uptime

#### **Space Monitoring**

Footfall; occupancy and flow; space management Improved service provision, reducing waste and unused space

#### **Energy Management**

Monitoring, targeting and analytics; sensors; optimisation and alignment with operations Reduced energy consumption and improved efficiency

#### Workplace

Space booking; car park management Reduced operations on unused space and improved productivity

#### **Occupant Wellbeing**

Air quality; ventilation; comfort management Improved productivity of staff and reduced sickness levels

#### **FM Services**

Efficiency of operations; wellbeing of staff Improved FM staff wellbeing and productivity, and reduced supplier impacts

### **Measuring Environmental Performance**

Monitoring and measuring environmental performance using technology can demonstrate a company's commitment to sustainability and a reduced environmental footprint across various parameters such as air quality, water quality and energy consumption. This can be achieved using sensors, drones, satellites, thermal cameras as well as other devices. The data and information collected can help companies better understand and track their environmental impact as well as identify opportunities for improvement.

Enabling companies to track and manage their carbon emissions through collating data from various sources such as energy bills or supply chain data can calculate specific footprints, aiding in the identification of opportunities to reduce emissions.

Technology can also support in the adoption of renewable energy sources, by using predictive analytics to forecast energy demand and optimise the use of renewable energy sources, as well as by using smart grid technology to manage the distribution of energy.



Finally, technology can support supply chain transparency, providing tools to track and monitor environmental performance throughout the supply chain. This can help companies to further identify risks and opportunities related to environmental performance and take action to improve it.

### **Monitoring Social Impact**

Technology can similarly facilitate the monitoring and measuring of social performance, identifying areas for improvement, and providing commitment to responsibility to stakeholders, via framework

reporting platforms such as Global Reporting Initiative (GRI) and Sustainability Accounting Standards Board (SASB) standards. These platforms can be integrated with data management systems to automate the collection, analysis and reporting of sustainability data to improve visualisation and access to stakeholders. Technology is also capable of enabling companies to engage with their stakeholders such as customers, employees, and community members more effectively.

Within workplaces, the use of sensors can help identify workflow patterns and usage of space to manage the local environment – temperature, ventilation rates – where required, optimising the space needing to be managed. Tailored maintenance and cleaning operations around higher



use areas reduces supply chain time, materials and resources to where required. Overall, the ability to provide temperature and ventilation levels appropriate with utilisation will also help to improve productivity of staff and reduce sickness levels. The sensors can also help to improve the same impacts of FM staff themselves denoting when individuals require a break and improving efficiency of operation.



### Managing ESG Compliance and Preventing Risks

Often an understated role for FM is the assurance that underpins many of the services being provided such as the quality of the data being publicly disclosed through to the evaluation of supply chain risks. Technology provides tools to **monitor compliance**, **manage risks**, **streamline board activities** and **report on governance practices**, revealing an organisations commitment to **accountability** and **transparency**. Data visualisation tools create interactive reports, as well as online platforms disclosing information about governance practices and policies. Data capture and assurances on accuracy, together with integrating into the workflow via Computer Aided Facility Management (CAFM) systems or related tools, help with standardised reporting and integration of sustainability metrics. With the inclusion of modern slavery regulations (source Modern Slavery Act 2015) and Scope 3 greenhouse gas reporting, engagement of the supply chain is important to provide a whole value chain perspective. Utilising platforms to collate data and allow for consolidated reporting and analytics can help challenge large supply chains, coordinate responses and highlight where risks exist.

Overall, technology can help to make ESG tracking more efficient, accurate and transparent, ultimately helping companies to improve their ESG performance and meet the growing demand for

"Emerging evidence shows that the integration of 'S' criteria in investment analysis leads to improved returns, less volatility and lower downside risk. Better integration of social indicators in particular can help to identify more resilient and profitable investment opportunities that are already aligned with established and anticipated regulation."



## What Are the Challenges for Adopting Technology?

Several barriers stand in the way of successful and efficient implementation of technology to deliver ESG in the FM industry. The conversations in the forum brought up a number of current problems within the sector.

- O Focusing on short-term financial returns and not long-term efficiency.
- O The compatibility of technology versus infrastructure.
- The industry is still dominated by big systems, tending to be more expensive and less flexible.
- Quick technology-solutions become barriers for forward-looking technology.
- O The full potential of data is not being utilised.

## "There is still a common business mindset – 'I need to sell more, not necessarily more efficiently'."

Having to make a choice between sustainability and selling more, most decision-makers will still choose the latter. However, efficiency can also increase sales, but the challenge is how to prove this.



Problems with finding **functional**, yet **cost-effective** solutions and innovations, such as smart buildings and thermal decarbonisation, were discussed. There was a general consensus that current products are too expensive, and that better predictive maintenance could decrease costs and increase effectiveness. However, most companies in the sector are still choosing the big systems to deliver their technology, despite numerous other ways to collect data and information without the need to use the big providers. Smaller systems would often be cheaper as well as more efficient, and much easier to align with specific strategies.

Some buildings are too old to support technologies such as building management systems (BMS). The forum discussed considering systems that are similar to BMS, but much cheaper. This could serve as one solution to lower costs, as well as including the older and more polluting buildings. System implementation into Life Cycle Assessments could increase the uptake.

Another barrier revolves around companies leaning towards quick technology solutions. In the acquisition of technology, the long-term solution component is often lost, becoming a blocker for forward-looking technology. It is therefore vital to inform clients about the risks of making short-sight technology purchases.

## "Technology is used to resolve short-term issues but has long-term problems."



The ownership of buildings causes some conflicts with technology in the FM industry. For technology to be properly implemented, buy-ins from clients and building owners are needed. The challenge comes when considering how to encourage support and investment in technology.

There was a general agreement on the increasing importance of the role of analysts at companies. However, recruitment for new roles can be challenging, as HR might not be familiar with the required skill sets. Moreover, there are concerns related to showing the accuracy of the data, and whether the full potential of data is enabled. There were also concerns regarding data being seen as mainly a corporate reporting item instead of an opportunity. Related to this, one concern raised was regarding which data is being looked at. Air quality is not seen as important as data on energy and carbon. However, as the related risks are not considered and if air quality is ignored in corporate ESG reporting, companies are not going to score well.



## Recommendations for the Future

The forum advanced onto solutions for the future: how can technology be implemented better to support ESG, and in which fields in the FM sector can technology improve the ESG performance?

#### Near future: an evidence-based approach

Client decisions are led by examples. Clients must be provided with evidence on financial returns or business benefits from increased efficiency through technology and sustainability. As pointed out by a participant:

#### "For example, energy sensor providers should start the pitch with data efficiency improvements and cost saving data. We see that it really convinces the clients."

Sustainability planning in the FM sector is also often synonymous to improvements in maintenance. An example of this is smart buildings: a building becomes more efficient and better maintained and will save both time and money by informing the need of replacement or maintenance.

The development of technology won't effectively happen without upskilling people. Businesses need to be educated for a long-term view on technology to avoid investments on short-term technology solutions that will later act as barriers. Even if good technology is acquired, humans can stand in the way of it being effective. Upskilling is therefore crucial to have enough individuals to deal with new technology and collect and analyse the relevant data.

### Longer-term: data and efficiency at scale

When considering a larger scale and looking some five or so years into the future, technology can create enormous changes for the FM sector.



**The correct data can lead to systemic change.** Currently in the sector, data is mainly used to identify failures which are then fixed. However, much of the data's potential is still left untouched. To make the most use of it, we must learn how to utilise data and learn from it in such a way that we can predict and avoid the problems before they occur. If we can prove that we can expect critical decision makers (such as governments or big businesses) to turn it into a systemic solution.

Another potential is the broader use of robotics. This will help with labour shortages and could also increase efficiency in the FM sector. The main consideration is that robots are getting both more advanced and cheaper, speeding up the uptake and allowing technological improvements. Delegating more tasks to robots allows humans to focus on the creative work, deemed to hold the most value in future recruitment processes. This has already been seen in South Korea, where an ageing and declining population has caused a major issue with the work force. The country has started using robots for a variety of tasks, including guiding at airports, serving in restaurants and even assisting in surgeries. Furthermore, robots are being used for tasks such as cleaning and installing flooring at construction sites, making their development relevant for the FM industry.

It is important to start improvements at a small scale to be able to make a systemic change. Governments and big businesses can push the development, providing they receive evidence of the related value.



Image - Unsplash

## Conclusion - What Needs to Change?

Today, FMs are collecting and harnessing the power of their vast data troves to make better decisions and building applications. Applications are not only using data to improve decision making but also making the lives of customers easier.

The next phase of the industry's digital transformation requires improved change management and fundamentally new ways of approaching the business. It also calls for investments in new types of talent to build, maintain, and enhance the tools that transformation requires.

There are a number of areas for FM to implement directly in relation to partnerships with suppliers to provide holistic solutions including improved business cases; use of component systems to provide additional flexibility; and clearer visioning of the ESG value generated in the medium term.

Similar for those purchasing the FM services, a longer term view is critical requiring a separate ESG technology strategy to provide outline specifications ensuring consistency in technologies provided by FM providers.

Technology has demonstrated the potential to transform the way we approach sustainability. Continued investment and use will further explore the possibilities of this exciting field.



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