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managing the relationship between people, place and productivity

How FM can help business leaders switch on essential productivity gains

Foreword

working with business leaders to redefine facilities management and enable next generation property strategy

Breathing new life into UK productivity

Installing an office slide, ping-pong table, replacing chairs with beanbags and upgrading the coffee machine are some of the more widely reported methods that UK businesses are using to encourage their teams to be happier and more productive at work. Of course, all have value - in their own unique ways - but businesses should also look at more effective ways of boosting and monitoring productivity.

It is time for a fresh approach.

We all instinctively know that poor office conditions lead to dissatisfied, unproductive and unwell building occupants. In 2016, a consortium of eight partners - including a team of workplace experts at EMCOR UK - backed by the government, embarked on a unique project called Whole Life Performance Plus (WLP+). The project focussed on the impact of workplace conditions on productivity and wellbeing of building users.

The results of the project, and in particular cognitive tests, were astonishing (see pages 10-11). With lower CO_2 levels, employees' test scores improved by up to 12%. In one of the buildings tested, people worked 38% faster. **Such conclusive findings on staff performance highlights the need for employers to take the monitoring and measurement of environmental conditions seriously.**

One of our high profile customers took part to better understand how the environmental conditions within administrative areas of their corporate offices effected employee performance. This was the culmination of a number of strategic interventions undertaken over the past four years, resulting in a 14% point increase in the aggregate score in perceived productivity among their staff.

EMCOR UK Workplace Consultancy - data driven performance and productivity gains

Working collaboratively, we've developed unique solutions designed to optimise workplaces and to improve the performance, productivity and wellbeing of the people who occupy them. We have invested in the technology, data and skills we need to be highly effective. We start with the gathering of data to unlock the hidden information within your organisation, from which improvements are identified and a workplace strategy created to incrementally make improvements and achieve measurable gains.

An untapped source of competitive advantage

When it comes to boosting productivity levels and the wellbeing of workers no stone should be left unturned. Rather than driving savings from the ongoing commoditisation of FM, more value will be achieved by adopting a collaborative approach enabling FM to impact overall business profitability. This paper looks at how facilities managers can help organisations switch on essential productivity gains and should serve as a wake-up call to business leaders that their workspaces are a source of competitive advantage.

managing the relationship between people, place and productivity

How FM can help business leaders switch on essential productivity gains

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raising productivity in the workplace

It is widely acknowledged that raising productivity is essential to securing a prosperous future for the UK economy as a whole.

In this paper EMCOR UK explains why Facilities Management (FM) is in a strong position to help deliver productivity improvements by better utilisation of the workplace.

Anyone who follows the development of the UK economy will have been left in no doubt that the UK has challenging times ahead of it for a variety of reasons including slow global growth.

There is an understandable concern amongst the public and commerce about what will happen to living standards and future profitability. In recognition of this, the Organisation for Economic Co-operation and Development (OECD) has said that the primary way the UK will improve living standards sufficiently is through raising productivity [1].

They are not alone in arriving at this conclusion with the UK Government and a host of business organisations pointing out the need to focus on finding a solution to what has been called the **'UK's productivity puzzle.'** On the face of it, the facts are startling. According to a 2016 release from the Office for National Statistics (ONS),

the UK's nominal productivity gap in output per worker terms was 16.6% in 2016, compared with the average for the rest of the G7. In addition, the UK has the largest "productivity puzzle" – the difference between post-downturn productivity performance and the predownturn trend in the G7; this was 15.6% in 2016, around double the average of 8.7% across the rest of the G7 [2]. Some commentators believe that decades of under investment is the reason why productivity is so low, as many used cost cutting strategies to stay competitive and to maintain profitability over the short term. But once these cuts have been made, finding the next transformative solution becomes ever more difficult. To illustrate this Linda Yeuh, the former chief business correspondent of the BBC, suggested, "As a share of GDP, UK investment began to trail that of the US, Canada, France and Switzerland in the 1990s. Investment fell from around a quarter of GDP in the late 1980s to just over 15%" [3]. This meant there was less productive capital for employees to work with and thus lower output per worker.

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2 keeping the eyes on the prize

It has become very clear that the close correlation between productivity rates, corporate profitability and living standards means that there is a strong incentive for organisations to address the situation.

The UK Government in a 2015 report called “Fixing the Foundations – Creating a more prosperous nation” [4], suggested that if productivity rates could be matched to those achieved in the US, GDP would rise by an astonishing 31%. This equates to around £21,000 for every household in the UK.

So clearly the prize resulting from resolving the ‘productivity puzzle’ is potentially enormous and stands to benefit everybody involved. However, one of the major issues with this is the sheer complexity of the problem – hence the term ‘puzzle’. In response, the Government launched a productivity strategy. It has no less than 15 key strategic themes, mostly based around the need for long term investment in both the public and private sector and new policy initiatives such as creating a “more balanced economy” and a “higher pay, lower welfare society.” As many of these are macro initiatives, they may not initially appear that helpful to the task of finding more immediate productivity gains for individual organisations. Indeed the challenge may often appear particularly daunting because, in many cases, much of the low hanging fruit might appear to have already been picked.

But not all – **EMCOR UK firmly believes that FM can offer new solutions in terms of achieving the increase in productivity that is so widely desired.** The key is to fully understand how employees relate to their collective and individual workplaces and what can be done to make these more conducive to productive working. This approach should be coupled with taking advantage of technology advances enabling the management and interpretation of data to provide evidence-based solutions

The key is to fully understand how employees relate to their collective and individual workplaces

Understanding how employees relate to their collective workplace is a key component in achieving a more productive work environment for them

3 what can FM contribute to productivity?

EMCOR UK has been in constant dialogue at a senior management level with a range of businesses and organisations to better understand what they need from FM and commissioned business consultants Frost and Sullivan to further research the market in more detail.

Business leaders are seeking a value proposition that focuses on raising the overall productivity of their business and not only about the pure performance of their assets and buildings. In short, FM must help to deliver on strategic as well as tactica goals. Therefore, EMCOR UK has refocused its approach to enable the delivery of integrated workplace optimisation solutions, aimed at making workplaces as productive as they can be.

A data led approach

At the heart of our approach is the effective management and use of data, particularly in real time, ensuring interactions with every function of a building are properly measured. We have developed powerful software tools and models to help us to do this. These include class leading Asset Management Software that provides a dashboard for sharing real time information on asset performance and predicts asset maintenance and asset replacement costs across a property estate for a period of up to 20 years or more.

We combine this granular detail with a highly developed understanding of how employees engage with each workplace. This approach acknowledges the fact that access to data, on its own, cannot make the desired improvements. It needs to be interpreted properly and there has to be a willingness to implement the necessary changes. This means a commitment to human interaction and a focus on wellbeing as an essential requirement to increasing productivity and not as a “nice to have”. FM is in a unique position to combine the operation of buildings with the implementation of wider wellbeing and sustainability programmes, because it covers both “hard” (technical) and “soft” (people) services.

Many of us intuitively believe that a happy workforce, based in a quality, well maintained, working environment, will be more productive than those who find themselves in the opposite situation. There is ample evidence drawn from opinion surveys, market research and academic studies that repeatedly shows that a well-managed, effective workplace helps to create a positive culture. This workplace culture with wellbeing at its core has a good chance of not only being more productive, but also more efficient, which can lead to it contributing to the sustainability goals of an organisation and greater profitability. Of course there are a whole variety of criteria that go towards creating an effective workplace. These include physical characteristics such as indoor environmental conditions, workplace design and culture.

each workplace needs to be considered differently

So what defines an effective workplace? There are of course many definitions but a good place to start is one that creates and sustains the right environment for higher productivity, as a direct result of greater user satisfaction.

In essence what this means is having the right people, in the right place, with the right tools. As a Leesman® Consulting Partner we measure employee experience via the Leesman® Index. The Leesman® Index is a global business intelligence tool that captures employee feedback on how effectively the workplace supports them and their work, and provides organisations with critical insight into how their workplace is performing. The insight benchmarks performance against the world's largest employee experience database and provides us with statistical robustness, research richness and diversity of which is unrivalled.

The index utilises over 425,000 lines of data gathered from over 3,244 workplaces around the world. Surveys they have conducted, as part of compiling the index, suggest that 39.7% of office workers (who responded) do not feel that the design of their workplace environment allows them to be productive. Taken to its logical conclusion, the inference is that over one third of the working population do not consider themselves to be in the right working environment to optimise levels of productivity. This represents a practical and cultural challenge or opportunity depending upon your mind set.

But sometimes statistics can be unintentionally misleading and you need to dig deeper for solutions. For example our experience has shown us that different users of the same building can be very happy or very unhappy depending upon the role they have to perform or department they work in. To illustrate this point, one of EMCOR UK's major clients has a headquarters building located in Southern England, where it is looking to transform its use of workspace to enhance productivity.

EMCOR UK enjoys a long term collaborative working relationship with this organisation and we embarked on a programme of operational transformation of the workplace with an aim to improve productivity, create cost efficiencies and improve the work environment.

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Source: Leesman®

During the assessment and audit phase, it became clear that employees in the client's marketing function were not happy about their location and this was leading to performance issues. Located in the back of the building, the marketing department wanted to be seen as being more central to the cultural and commercial development of the company. They therefore needed to be nearer to the main traffic points in the building, so that they could share information more easily and influence the wider corporate personality. The legal team on the other hand had the opposite view and felt that their more central location was detracting from their productivity because they were consistently being disturbed by other workers. There were also potential implications for the confidentiality of legal documents in a high footfall area. The situation was remedied by essentially swapping the departments around in the building, and the effectiveness and engagement of each was seen to rise accordingly, as staff found themselves in an environment that better suited their specific needs.

The lesson from this is clear; different departments and different people require different things from a building and it is wrong to assume that everyone thinks the same way.

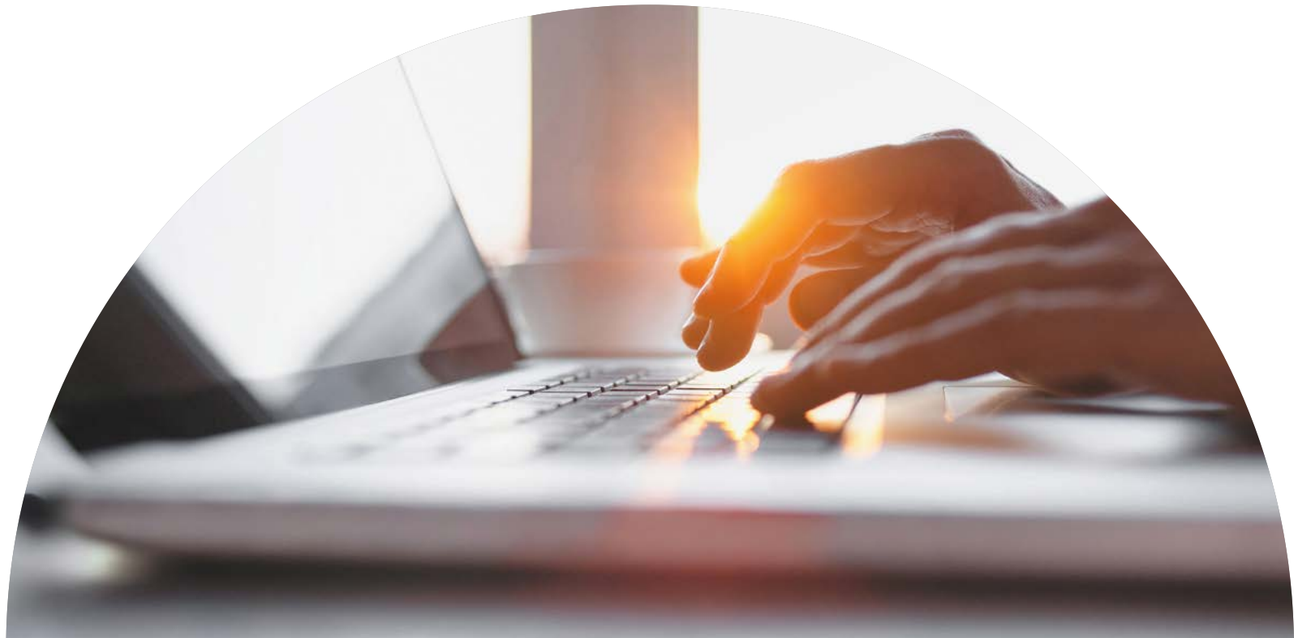
This is not limited to departmental requirements. A study from Maastricht University Medical Centre has shown that air con units are designed for the body temperature and metabolism of 40-year old man which runs up to 30 per cent faster than a woman's. So while men are comfortable in the workplace, the majority of women would need conditions to be nearly four degrees warmer.

Metabolic rate also lowers with increasing age which means that an older workforce is likely to need higher office temperatures [5].

It is therefore vitally important to take this into account when defining indoor climate standards and workplace design.

The good news is that we can design and develop flexible working spaces with different temperature zones so that people can move to an area where they feel more comfortable and be more productive.

Other indoor environmental conditions such as CO2, humidity, light and noise have been found to have a significant impact on the productivity and wellbeing of building occupants. Recognising these issues and implementing change is an important part of the solution when it comes to solving the productivity puzzle.



5 breathing new life into UK productivity

Failure to regulate environmental conditions is negatively impacting workers' cognitive functions – and ultimately – their wellbeing.

Installing an office slide, pingpong table, replacing chairs with beanbags and upgrading the coffee machine are some of the more widely reported methods that UK organisations are using to encourage their teams to be happier and more productive at work. Of course, all have value - in their own unique ways - but organisations should also look at more practical ways of boosting productivity.

We all instinctively know that poor office conditions lead to dissatisfied, unproductive and unwell building occupants. Until recently, the correlation between the quality of indoor environmental conditions and worker productivity had only been studied in the laboratory, not in real-life working conditions. This meant that the true effect of the likes of noise, humidity, light and carbon dioxide on British workers had never been fully explored.

According to the latest Office for National Statistics report, measured between July to September 2018, productivity only increased by 0.2% in the UK compared to the year before [6]. Solving this 'productivity puzzle' is a strategic goal of both public and private sector organisations - with different variables across education and industry under consideration for creating improvements. Despite several years of different tactics to help close the productivity gap, only now are environmental factors under consideration. As facilities managers, we have an opportunity to lead this discussion and educate our peers on just how important they are to the overall functionality of organisations.

CO_2 levels in offices 'silently damaging UK productivity'

Research backed human performance gains

In April 2016, a consortium of partners – including the team of experts at EMCOR UK – backed by the government, embarked on the first-ever practical study into UK indoor office environments. Led by academics at Oxford Brookes University and LCMB Building Performance, the study was supported by Innovate UK - the government agency tasked with boosting innovation in the UK economy. This forms part of the Whole Life Performance Plus (WLP+) project, which brings together a consortium of leading experts in building performance, property development and facilities management.

In one of the buildings tested, people worked

38%

faster with reduced CO_2 concentrations

With lower CO_2 levels, employees' test scores improved by up to

12%

Workplaces taking part in the study – including NATS and King's College London – were tested over two years, with internet of things (IoT) enabled sensors installed to monitor temperature and CO_2 levels. During this time employees were sent numerical, proofreading and Stroop tests via email up to three times a day as part of the study. A methodology was then applied to calculate the impact of CO_2 and temperature on perceived productivity in those workplaces.

With lower CO_2 levels, employees' test scores improved by up to 12%. In one of the buildings tested, people worked 38% faster with reduced CO_2 concentrations, completing tests in a mean time of 8.2 minutes, compared to 13.3 minutes with higher CO_2 concentrations in the atmosphere [7]. Such conclusive findings on staff performance highlights the need for employers to take the monitoring and measurement of environmental conditions seriously.

CO_2 and the 'Stuffy' office

In most modern offices, the opening of windows is highly controlled, meaning that the quality of the indoor atmosphere is heavily reliant on air conditioning. This means, for example, when offices are built or refurbished, they are often 'sealed' and air-conditioned as standard. Even if buildings meet ventilation standards, this doesn't mean that high CO_2 levels are being effectively detected and reduced, and often lead to offices feeling stuffy – which can mistakenly be put down to high temperatures. In these instances, increased energy usage is often expended on cooling via air con systems with the consequent and unnecessary creation of additional greenhouse gas emissions in the atmosphere.

While cooling may mean the office feels fresher, it doesn't lower the CO_2 level. For example, meeting rooms, which are often sealed and occupied for prolonged periods, can be allowed to reach up to 3000ppm CO_2 - impacting concentration and productivity levels.

This becomes increasingly problematic as CO_2 levels are not recorded with enough granularity by traditional building management systems to evaluate the effect on building occupants. For facilities managers responsible for indoor conditions this gives new meaning to 'breathing life into buildings' and optimising CO_2 levels should now be seen as a pre-requisite to ensuring that workplace environments promote healthy and productive conditions for people to perform at their best.

Time for Change

When it comes to boosting our productivity levels and the wellbeing of workers, no stone should be left unturned when searching for ways to reverse current trends. The monitoring of CO_2 levels and improving the indoor office environment is one solution that has been overlooked for too long. The findings from the study must serve as a wakeup call to business leaders that their workspaces are a source of competitive advantage and CO_2 levels, as well as the other parameters that are more widely known, need to start being monitored as standard in offices across the country.

Smart building technology is helping FM improve performance and drive productivity gains like never seen before

collaboration is essential to success

EMCOR UK is fortunate to enjoy collaborative relationships with many of its client and these often extend right through an organisation from the reception to the board room.

EMCOR UK became the first FM services provider to achieve ISO 44001 Collaborative Business Relationship Management, which provides a framework to help companies develop and manage their interactions with other organisations for maximum benefit to all.

The purpose of collaboration is to initiate and legitimise the combined focus of all involved in consistently finding better ways to achieve common goals and often that is best done by facilitating genuine dialogue and information exchange between the various parties.

But simply asking people for their views is not enough, true collaboration requires the presence of empirical information when it comes to creating the optimal working environment. Advances in integrated technology is rapidly changing the role of Facilities Management and moving it from purely a source of tactical repairs, to a strategic function that can radically change the

performance of a building and the people that work in it. This is because the improvement in sensor technology, for example, has led to an exponential growth in data that, if managed and interpreted correctly, can be used to more accurately identify and assess potential problems and opportunities. solutions to problems, such as repairs, to a strategic function that can radically change the performance of a building and the people that work in it. This is because the improvement in sensor technology, for example, has led to an exponential growth in data that, if managed and interpreted correctly, can be used to more accurately identify and assess potential problems and opportunities.

Linked to this is the “internet of things” which describes the migration of the physical world to digital data. The number of connected devices that are in use worldwide now exceeds 17 billion, with the number of IoT devices at 7 billion (that number does not include smartphones, tablets, laptops or fixed line phones). By 2025 the prediction is 34.2 billion [8].

What this means for FM is that these days we can record people’s actual usage of a building in a very granular form. **From this information it is possible to have a highly accurate assessment of important factors such as occupancy levels, footfall and energy use.** It means that a piece of plant, for example, can tell you remotely when it needs maintaining and therefore reduce the need for “routine” checks which are time consuming and unnecessary. This time can therefore be used more productively elsewhere in the building. This approach is critical when we are collaboratively working with a client to maximise effectiveness of the working environment, where we can demonstrate the benefits of change not only with opinion based information but with hard data too. In our experience both have a very important role to play in getting to the right solution.

It used to be thought that “time and motion” studies were used by management to give them the data they needed to drive improvements in productivity.

Smart building technology, data science and analytics are helping FM solve the productivity puzzle

Smart building technologies enable management to have much more detailed information at its finger tips with regard to how staff interact with a building. From this data we can work out whether facilities are in the right place to best serve the needs of those people who need to use them. Or perhaps we can establish what the best cleaning regime might be that has the least impact on the users of the workplace and a host of other possibilities.

Of course these issues can become sensitive very quickly if the transformative process is not properly managed and it is important to realise this from the outset. A collaborative culture enables this information to be used as an evidence base to consult with workforces to create improvements that benefit all parties. In our experience this is more often than not the outcome if the concept is introduced properly.

Empirical data is hard to argue with and therefore provides the basis for trust, which is all important in creating and sustaining effective collaborative relationships and real engagement.

We have worked hard to develop reporting and evaluation tools that our customers and our staff can use to work more effectively together by employing real time information. Getting management and staff to value empirical information is important to ensuring that participants feel they are contributing to the desired outcome. Effective collaboration requires all the parties involved to be open and transparent with information, which is therefore not seen as being manipulated to the advantage of one party over the other. This can represent a considerable cultural adjustment and investment and is therefore not easy to achieve. But the results can be spectacular and to the benefit of all concerned when true collaboration is practiced in the effective operation of an organisation’s estate.

productivity gains in the workplace can happen now

If the UK is to succeed in its drive to increase productivity, then it need not wait for the long term elements of the Government's ambitious productivity strategy to come into effect to start having an impact.

Certainly when it comes to getting more from the workplace, a simple commitment to consulting with all involved, committing to the need to gather, interpret and share empirical data and keeping an open mind is a proven way to start achieving results. These gains could come from optimisation of space as part of the workplace, reducing energy consumption and improving the indoor environmental conditions for workers - all of which can contribute to improving performance, operational efficiencies and workplace productivity. To conclude, FM is in the very best place to help achieve productivity gains in the workplace and there is no reason why these gains should not be realised by organisations right now.

Immediate gains come from IoT and data driven workplace efficiencies, effective measurement and control of indoor environmental conditions (such as CO_2), and wider wellbeing and sustainability programmes.

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a better world at work

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