

Workplace of the future:

Smart,
sustainable
and safe

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By Tim Spies

For those employees heading back into workplaces across the world, after months of working from home, the question on everyone's mind is:

“Do I want to return to the workplace, and if I do, what will I discover when I finally get back and how will it change in the future?”



Uncertainty creates opportunity

Over the past few months, organisations that transitioned their staff to home-based working, have been crunching the numbers and navigating the complexities of sanitisation and social distancing to ensure the health and safety of their workforce returning to the 'mother ship'.

Countless surveys have been conducted amongst staff to ascertain a need and desire to return to the workplace and if so, under what conditions and where. Workplace designers and landlords have likewise been surveying clients and tenants, exploring options for how to accommodate a more socially-distanced workforce in potentially more decentralised, contactless, sanitised 'workplaces'. Some cities in Asia have led the way, such as **Singapore**,

instigating protocols including temperature checking on arrival at the workplace, proactive contact tracing, apps to call lifts, touchless tapping of internal fixtures, split teams working alternate days and weeks, and mandatory mask-wearing in the office.

Melbourne was sent back into lockdown after COVID-19 clusters appeared, including at an **abattoir and workplaces**, and Auckland also snapped back into lockdown following the first community transmission in over 100 days, bringing a new level of uncertainty around the safety of moving beyond the home.

A paradigm shift for workplaces

– *what do we need to consider?*

COVID-19 has created a new normal of uncertainty, constant change, complexity, and contradiction. What we thought the future held for workplaces has been turned upside down, leaving us asking if things will ever be the same again.

With so much uncertainty, how can organisations and employees prepare for what may or may not come next, and how can they grasp the opportunity for change and innovation?

There are many aspects to consider.

Workers have enjoyed working from home – *at least some of the time*

In July this year, global workforce solutions firm Adecco, undertook a **survey of 8,000 office workers**, revealing that three in four workers want more flexibility between office and home-based working.

At Aurecon, we surveyed staff in our built environment business across Australia and New Zealand, as part of a more comprehensive **Dexus Six Ideas** survey, researching the impacts of working from home during COVID-19. Being a company with a high level of technology to assist with the delivery of projects, transitioning to remote working was relatively seamless. However, collaborating and workshopping ideas within teams and with clients is a core part of how we operate as a business.

So, the fact that almost 80 per cent of staff surveyed indicated they would like to continue working from home at least some of the time, presents an interesting conundrum. In detail:

- 83 per cent said they work from home productively – either about the same as before or better
- 65 per cent enjoy working from home
- 69 per cent had an easy transition to a virtual workplace
- The majority felt that their physical and mental health had either stayed the same or improved since working from home

- 81 per cent believed their carbon footprint had decreased, particularly due to the lack of commuting
- 67 per cent missed working from the office, in particular the social interaction and sharing ideas/ brainstorming with others
- 52 per cent would ideally like to continue working from home 1-2 days a week and 27 per cent would like to continue working from home 3-4 days a week once restrictions are lifted. This is dependent on having an appropriate working from home set-up (including dedicated working environment and access to technology)

Mental health is a concern

While the Aurecon employees surveyed indicated that their mental health had either stayed the same or improved since working from home, broader statistics have revealed that **mental health and wellbeing has been challenging** for many in lockdown and isolation, raising an important question around the sustainability of being disconnected from the workplace long-term and what support organisations may need to put in place to ensure the mental health of staff working remotely.

Less mingling = better physical health

Even without a virus, what this pandemic has shown us is that less frequent and close mingling with colleagues and strangers has reduced the incidence of colds, flu and other contagious diseases. **FluTracking** has reported historically low flu-like illness activity in both Australia (Figure 1) and New Zealand (Figure 2) over the winter months. In fact, COVID aside, we have been 50-75 per cent less sick from traditional colds and flu during this time.

Perhaps not surprisingly, it seems that the modern workplace is a hotbed for disease and contagion. Whether it's an office in the CBD or the suburbs, a university campus, retail outlet, hospitality venue, factory or co-working space, is our focus on creating environments that are attractive and inviting places to work, at risk of creating illness incubators?

The modern workplace is a phenomenon that has only existed for some 100 years, since the Industrial Revolution. Prior to that, 'workers' could mostly be found toiling alongside 'owners' in factories, on farms, in small commercial enterprises or at home. While this might seem inconceivable to most of us, who have spent the best part of our adult lives in some form of a building, mostly at a desk, could the future look more like the past, although thankfully now with greater awareness of workers' rights?

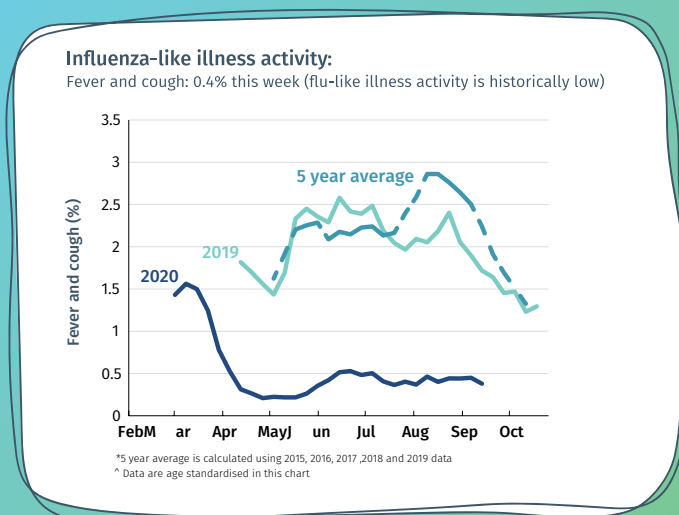


Figure 1 Flu tracking in Australia – w/e 16 August, 2020 (Source - **FluTracking**)

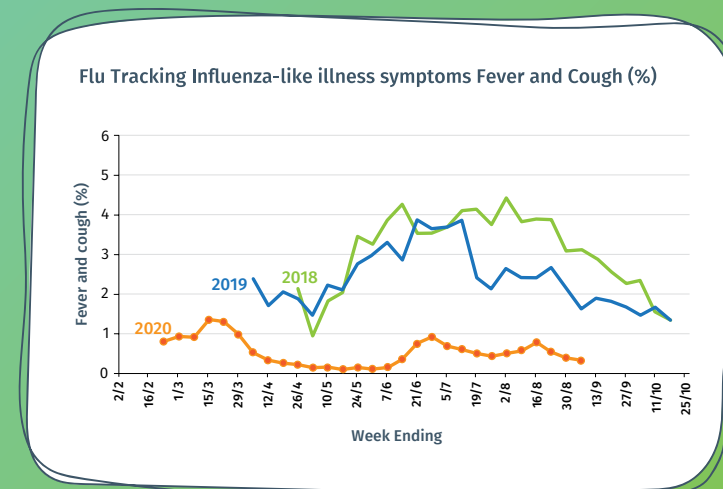


Figure 2 Flu tracking in New Zealand – w/e 9 August, 2020 (Source: **FluTracking**)



Work-life merging - a pro or con?

Technology has been a huge enabler in creating a dispersed and flexible workforce in recent times. During COVID-19, notwithstanding the challenges of remote schooling, many have discovered the joys of combining home and work life – cooking, renovating, gardening and mingling with family members – as an unexpected bonus of working from a home base.

However, those in lockdown for long periods of time have also discovered the limitations of working from home with no ‘off’ switch between work and leisure, and the constant distractions and demands from family members, including pets!

A case for greater equality

Working from home has also been an interesting case study in equality, at least between ‘out-of-home workers’ and ‘home workers’. With there no longer being a delineation between the person who ‘goes to the workplace’ and the person who ‘stays at home’, usually looking after the children, being absent from the workplace is, at least for the time being, not seen as a career-limiting activity. Could this be the parenting equality game-changer we have been waiting for? If so, is the blur between home and workplace something that should be encouraged, if not actively mandated?

We have been talking about ‘work-life balance’ for decades, suggesting that life is somehow irrelevant or subservient to work and needs to fit in around it. Yet, in six short months, we have learned that work and life can co-exist, enabling us to be productive, healthy, spend time with family and friends and pursue our passions.

Ensuring employer commitments to health, safety and culture are met

While working from home has its benefits for organisations and individuals, there have also been many challenges.

What are the workplace health and safety liabilities for companies whose staff have been mandated to work from home?

How do you create a common company culture and sense of 'belonging' when employees are dispersed and disconnected for much of their working days?

In their paper, **Reimagining the post-pandemic workforce**, McKinsey poses the question of how to create a common culture, social cohesion, shared trust, consistent ways of working and agreed behaviours when your workforce is split between those that work in the office and those that work at home. Avoiding an 'us' and 'them' mentality can be difficult, and the McKinsey paper cites many companies that have tried virtual working and failed.

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Accommodating a diverse workforce

If we consider that generation z will be the future workers in these new workplaces, then what are they specifically telling us?

In the Aurecon survey, those 25 years and under felt they were less productive working from home. Between the ages of 26 and 55, they said they were either as productive or more productive working from home. In terms of the future, 92 per cent of those 25 years and under said they would like to work from home at least some of the time. In the 26 to 55 age group the numbers were even higher.

Understanding that networking, workshopping, meeting and socialising with colleagues is important as a means of creating and sustaining corporate culture, encouraging innovation and supporting mental health, with most people across all age brackets wanting to work from home some of the time going forward, how can we make all workplaces, whether they are CBD offices, decentralised hubs, retail outlets, health facilities, or places of learning, more attractive, inviting, safe and healthy to entice employees back?

The case for smart, sustainable, safe, hybrid hubs

There are a number of imperatives that have emerged for the new workplace:

- It needs to be able to protect the health and safety of workers – people need to feel secure and trust that the building won't damage their health
- It should incorporate both quiet spaces for individual work, to cater for those for whom working from home is not an option
- There need to be spaces for meeting, networking and collaborating
- It needs to allow people working from home to connect seamlessly to those in the workplace
- It needs to be flexible, to quickly adapt to a pandemic or other unexpected and unforeseen circumstance that might arise in the future

- To be attractive to the current workforce, as well as the new and emerging workforce, it needs to be designed to meet their human values and expectations of:
 - **Sustainability** – to combat the impacts of climate change
 - **Flexibility** – to cater for their changing values, the evolution of our societies and unknown, future disruptions as we have seen with COVID-19
 - **Smart tech** – for generations that have grown up with the internet, social media, digital technology, and the sharing economy, they expect to have data at their fingertips to make decisions and exert control. For workplaces to be healthy and safe, contactless technology will be key

What might therefore emerge are workplaces that reflect the diverse and emerging needs of employees who want flexibility to work from home, combined with a safe and healthy place to collaborate when they come into the workplace.

Smart, sustainable, human-centred, safe, hybrid hubs – high tech-enabled, low carbon, flexible, collaborative meeting places with facilities for individual and team working, across a broader geographic footprint, with fewer people interacting on a daily basis, could be a solution.

While being a magnet for talent, by giving employees greater flexibility and the option to work both at home and in a creative hub that is 'homely', 'high tech', and helps to lower their carbon footprint, it could also mean reduced costs for employers in the long-term.

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Work/home hubs

Maybe these 'workplace hubs' will combine with residential apartments in both CBD and suburban areas, so working and living in the same place, albeit moving from your 'home' to a co-working space in the same building, could be an alternative. As many apartment-dwellers have discovered during COVID-19 lockdowns, having a study or extra room for 'work' as distinct from 'off-work' areas of bedrooms and lounges, can be a welcome relief. For those who live alone, working from home has presented other challenges of isolation and disconnectedness, so a hybrid office/home building may be a solution.

Office 'hubs' for networking, collaborating and creating will also appeal to the younger generations living in share houses, currently trying to work on their laptops on the end of their beds or on communal kitchen tables, who also need the mentoring and guidance early in their careers from more experienced practitioners.

It will also appeal to those employees who can work effectively from home most of the time but need the occasional connection with colleagues or clients for workshopping or creative brainstorming.

Both existing apartment and commercial buildings could have the potential to reconfigure as work/home hubs, depending on the age and configuration of the building.

Particularly in densely-populated cities, work/home hubs could be a game-changer for work-life balance, also reducing commuting and the time, effort, expense and carbon emissions that entails.

For example, Hong Kong is challenging for employees when it comes to working from home, as the average apartment, even for families, is very small. This can lead to difficulties with both working efficiently and long-

term health. Typical Hong Kong workers, especially younger professionals, are unlikely to have their own space to work – they may not even have their own bedroom, so establishing a safe, comfortable workstation can be very challenging. Added to which the very issues we are trying to improve in offices – better air quality, social distancing etc, can be difficult to achieve in high density older residential buildings.

It may well be that the new office needs to offer a healthier working environment for them than the edge of their bed or the kitchen table.

New York's **Hudson Yards development** is an emerging example of an integrated, sustainable, work-live-play neighbourhood, which its developers, Related Companies, believe is ahead of its time and particularly now, is demonstrating the **value of the work/home hub model**.



Smart, health-promoting systems and technology

Smart technology could enable the following:

- Contactless, perhaps voice-activated or facial recognition, temperature-monitored, entry and exits
- Socially-distanced escalators in place of lifts
- Digital desk wayfinding
- Staggered start and finish times
- Apps to identify spaces for quiet or collaborative working
- Ventilation systems that create an individual 'bubble' effect, rather than dispersing air (along with bacteria and viruses) across a large area
- Managed humidity to stop droplets drying out and floating in the air as particles. There is increasing evidence supporting the idea that low humidity increases infection spread

- Smart cleaning technology, including centralised vacuum systems, rubbish chutes instead of bins, and triggers to clean desks once vacated
- Escalators incorporating an antiseptic brush/bath so that the handrail is cleaned with each circuit

The Air Conditioning and Mechanical Contractors' Association (AMCA) has released a position statement on **the role of HVAC systems** in mitigating the risks of airborne diseases, including:

- High efficiency or hospital-grade air conditioning particulate filters
- Ultraviolet germicidal irradiation (UVGI)
- Portable room air cleaners

These are just some of the considerations which will need to be factored into the workplace of the future as we seek to provide a safe and healthy space for people to work.



Sustainable solutions

According to the **World Green Building Council**, building and construction represent 39 per cent of all carbon emissions. This consists of operational emissions (heating, cooling and lighting) at 28 per cent and a further 11 per cent from embodied carbon – the materials and processes used during construction. Although emissions appear to have levelled off since 2015, the sector still represents the largest share of total global energy-related CO₂ emissions.

Before COVID-19 hit, organisations were already considering how to reduce their carbon footprint, and this has only been amplified by the realisation that our changed commuting and working habits can actually make a difference, with studies showing up to a **75 per cent decrease** in carbon dioxide emissions in several European cities during lockdown. Most people and organisations will be reluctant to return to the ‘old’, polluting ways of operating, particularly in densely-populated cities.

Since 2018, a raft of leading companies and universities have signed up to the World Green Building Council’s (WorldGBC) **Net Zero Carbon Buildings Commitment**, aimed at reaching net zero carbon operating emissions in their portfolios by 2030 and maximising the chances of limiting global warming to, ideally, below 1.5 degrees.

In Australia, large asset owners committing to these ambitious targets include **Dexus**, Cbus Property and Nightingale Housing, Frasers Property Australia, GPT Wholesale Office Fund, Integral Group, Stockland - Retirement Living & Logistics, the Sydney Opera House and the City of Sydney. Universities such as **Melbourne, Murdoch, the University of Queensland** and **Monash** are also leading the way.

Post-pandemic, sustainable workplaces will gain a greater focus, demanded by end-users as well as investors. As **McKinsey** points out in its report ***From ‘why’ to ‘why not’: sustainable investing as the new normal***, more than 25 per cent of assets under management are being invested on the premise that environmental, social and governance factors can significantly impact performance and value.

Case study

25 King St, Brisbane Australia's tallest commercial timber building

Aurecon delivered a world-class, sustainable building for client Lendlease, and owner Impact Investment Group, achieving world-leading sustainability ratings, demonstrating that sustainable solutions are both achievable and affordable.



WELL Core & Shell
Platinum Rating



Green Star 6 Star Design and
As Built V1.1 rating



On target to achieve 5 Star
NABERS Energy Base Building
rating



Reduced carbon emissions

- 74% embodied carbon reduced over 60-year life²



Reduced base building water consumption

- Rainwater harvesting + water efficient fittings = 29% reduction in water consumption³
- 30,000L capacity rainwater tanks used for toilet flush water



Reduced base building energy consumption

- Rooftop solar provides 15% of base building's electrical consumption⁴
- Efficient building services, glazing system + building shading = 46% reduction in energy use



Improved comfort and quality conditions for occupants

- Enhanced ventilation incorporating increased outdoor airflow - 100% increase on AS1668
- Sensors and risers to manage CO₂ limits and eliminate pollutants
- Lighting design and brightening strategies for visual comfort
- Low VOC materials, finishes and sustainably sourced products
- Integrating elements of nature into design - wood is correlated with higher levels of concentration, improved mood and personal productivity⁵



Reduced lifecycle costs

- Due to reductions in energy and water consumption and the use of timber

Aurecon – structural, building services, acoustics engineering; sustainability consultants; project managers for Aurecon office relocation

Lendlease – timber structural engineering design (with Aurecon), developer, contractor

Bates Smart – architectural design, base building

Woods Bagot – interior design, Aurecon fit-out

Owners – Impact Investment Group

¹ As at March 2020

² The embodied carbon represents the cradle to constructed onsite lifecycle stages, saving accounts for the sequestered carbon locked within the timber structure, compared to an equivalent conventional reinforced concrete building.

³ When compared to the GBCA Green Star Design and As-Built v1.1 benchmark.

⁴ When compared to the GBCA Green Star Design and As-Built v1.1 benchmark.

⁵ Workplaces, Wellness + Wood = Productivity - <https://www.woodsolutions.com.au/wood-at-work>

How do we get there?

For building owners and developers this may all sound like a bridge too far. With uncertain future revenues, how can spending funds on repurposing or building new safe, 'smart' workplaces be justified?

The challenge is that it may not be an option to do nothing. Aurecon has been exploring the concept of **Buildings of the Future** for the past five years and it now looks like the future is here!

1. Focus on the people

Buildings aren't about bricks and mortar or technology, but about **the people who occupy them**. If we want to attract our people back into the workplace, as well as new talent, then we have to create workplaces where people will want to come. **Eighty-five per cent of a company's annual budget** (Figure 3) is spent on staff salaries, so it should be a major focus.

Now more than ever before, company profits will depend largely on the health, wellness and productivity of people. As well as creating 'home-like' environments featuring natural light and ventilation, thermal comfort, relaxing break-out areas, collaboration spaces and pods for concentrated work, the added demands of sanitisation,

social distancing and disease mitigation measures will need to be incorporated. Digging deeper into the values and principles of a generation z workforce, a focus on sustainability features to combat the impacts of climate change, and recognition of diversity and inclusion will also be important.

Changes in the way we live and work and how technology enables that, will also impact the expectations of employees. Flexibility to work remotely, sharing working space with other companies in a work/home hub or precinct, and changes in how we travel to and from our workplaces, for instance, with a rise in ride sharing, cycling or the advent of autonomous vehicles or car drones, will impact the design of buildings.

The Internet of Things also has the potential to change how people interact with buildings, for instance, by being able to check occupancy levels on a smart-phone, in a socially-distanced world, before heading into the workplace. Giving more information to employees will give them a sense that going into the workplace is a decision totally in their control, based on accurate and 'real-time' data. Likewise, for building managers, having data to help better manage the operation of a building that is only occupied some of the time, enables better decision-making around maintenance, energy-saving initiatives and upgrades.

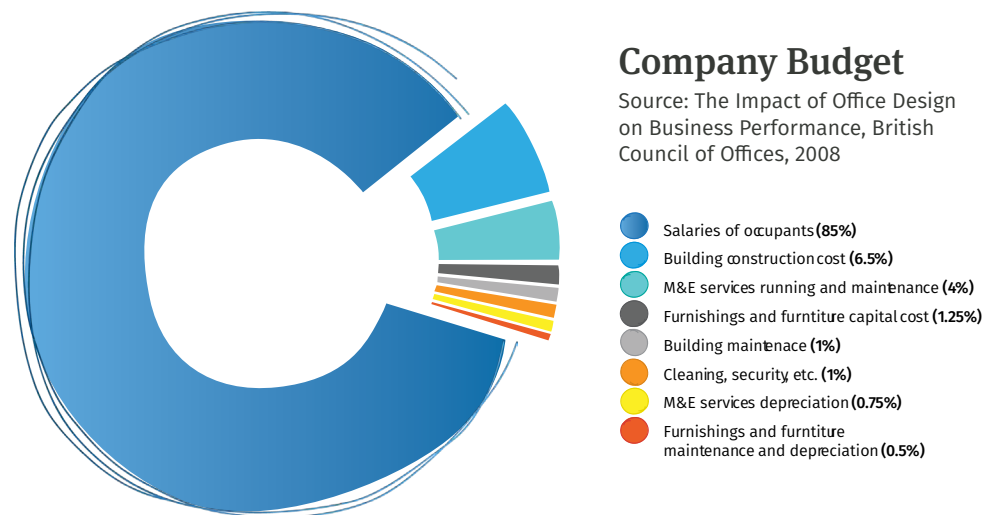


Figure 3 Salaries account for 85% of company budgets

2. Take a holistic approach

Smart investment in the workplace of the future will depend on assessing options across four key areas (Figure 4):

- **Educational** — How can we **turn a building into a living, breathing example of good design**, now also incorporating social distancing, sanitisation and touch-free essentials?
- **Economic** — With revenues challenged, how can we **increase a building's ROI**?
- **Experiential** — If workers are only in a workplace for some of the time, how can we make it welcoming and attractive, as well as increase productivity in a building?
- **Environmental** — How can a building benefit the community and environment, to align with the values of a generation z workforce?

Now more than ever, ensuring that workplaces provide an optimal occupant experience, are efficient, environmentally considerate, and can provide 'smart' data to help employers and employees operate more effectively, secure in the knowledge that they are in a secure, safe environment that won't damage their health and wellbeing, will be essential.

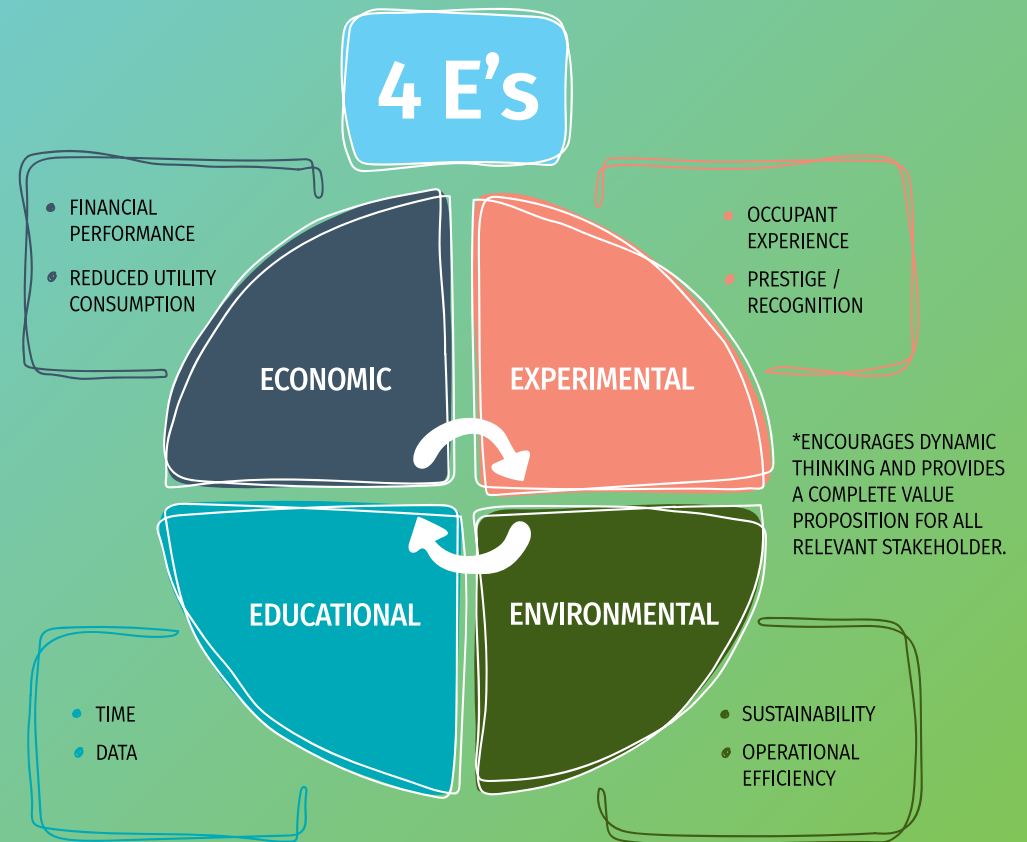


Figure 4 Assessing investment decisions across four key areas

3. Assess the lifetime cost benefits

Dividing net profits by total assets is no longer an acceptable way to determine **the 'profit' of a building**. The equation is far more complex than this, and includes a building's ability to provide a healthy working environment — and thereby reduce absenteeism; its ability to attract top talent; to create the perception of value to influence rental returns; and successfully support corporate strategy elements such as **environmental responsibility and collaboration**.

A holistic approach is needed because everything from operating and maintenance costs, employee comfort and productivity, as well as the building's ability to attract prospective tenants needs to be considered.

The **Green Building Council of Australia** found that when Indoor Environmental Quality (IEQ) elements are given good attention, productivity increases by up to 10 per cent, on top of the improvement to overall health and wellbeing. For most businesses, that 10 per cent boost is enough to completely change the game.

Educational and health facilities have also reported gains in student and patient outcomes when light and ventilation are improved. And the good news is these options apply to existing buildings as much as new ones. The Internet of Things is helping to bring old buildings into the present and the future.

The **World Green Building Council** has joined with leading built environment experts across 51 countries to petition the World Health Organisation to support indoor air quality best practices to combat the spread of COVID-19, recognising that the virus spreads via aerosol as well as larger droplets.

Looking at what is needed today and in the short-term can lead you to miss the disruptors on the horizon (much like the COVID-19 pandemic). When you consider 75 per cent of a building's life-cycle cost is operational compared to 25 per cent in the development period (Figure 5), the investment focus should be in the operational phase.

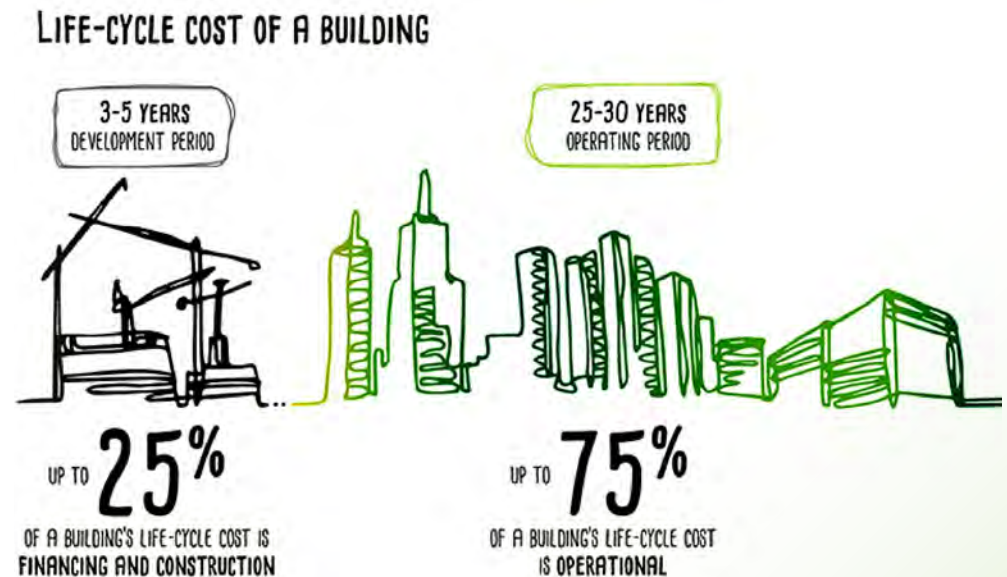


Figure 5 Most of the costs of a building are in its operations



Opportunity beckons

While we are in ‘survival mode’ our focus is rightly on returning to a ‘new normal’ in the most seamless way possible, ensuring the health and safety of our workers and communities. However, it won’t be long before decisions will need to be made about the future of our workplaces.

At that time, we will want to ensure we have the intel and a roadmap for how to navigate a future that will be forever uncertain but also laden with opportunity for those who get it right.

As the writer Raymond Williams said:

“To be truly radical is to make hope possible rather than make despair convincing.”

Before too long, the time will be ripe to move from dwelling on ‘survival’ to focusing on the future and the radical possibilities ahead.

“To be truly radical is to make hope possible rather than make despair convincing.”

Raymond Williams



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Bringing ideas to life

About Aurecon

Aurecon brings ideas to life to design a better future.
Imagining what is possible, we turn problems into solutions.
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www.aurecongroup.com