Linesight

Middle East Handbook 2020

Construction trends and insights

Updated September 2020

linesight.com

Alef Residences, Dubai
Architect:
RMJM

Linesight services:
Cost Management

Welcome to the **Linesight Middle East Handbook 2020**

Each year, we gather the key indices and trends in construction in the Middle East, giving you the most comprehensive overview of the industry.

For the complete global view, visit the Linesight Knowledge Centre: **linesight.com/knowledge-center**

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Middle East Market Review

Middle East Market Review

With the impact of COVID and the realisation of its impacts beginning to be felt around the world, Kevin Gardiner, Associate Director at Linesight, discusses the economic and construction industry performance for the Middle East.

Economic overview

Despite the diversity in the Middle East construction industry making it difficult to draw broad conclusions and forecasts, there are a number of common factors influencing all economies in the region to various extents, including the COVID-19 pandemic. Once again, oil prices are also having a significant impact on growth, along with geopolitical tensions, global trade wars and macroeconomic performance as a whole. These factors coalesce in the region to make the GCC less predictable than most major global markets.

In spite of lacklustre growth in the region over the past few years, economic expansion within the GCC states was expected to reach a modest 2.5% in 2020, according to initial forecasts by the IMF. Not surprisingly, this has been revised downwards to a projected contraction of 7.3% in Middle East oil-exporting countries as of July 2020, due in part to the impact of the global pandemic. Pre-COVID, upside growth prospects were primarily driven by significant investment in infrastructure and major capital projects across key sectors such as hospitality, entertainment, education and healthcare. GCC economies have been dealt a 'double blow', as turmoil in the oil markets has been compounded by the economic impact of pandemic-linked lockdowns, particularly in the tourism and trade sectors. Austerity measures in the form of steep government spending cuts have been implemented across the GCC and will have an adverse impact on growth in the short to medium term across the region.

Despite significant regional government efforts to diversify economies in recent years, the GCC's dependence on oil plays a major role in economic activity and will have a significant impact on the pace of recovery post-pandemic. Since hitting a ten-year low in January 2016, oil prices improved considerably, rising from below US$30 per barrel to US$64 per barrel on average in 2019. 2020 has been another difficult year, as hopes for a more buoyant oil market have been eroded by downward pressure on oil prices, resulting in an estimated loss of US$270 billion in GCC government revenues according to the IMF. This loss of revenue will hinder the ability of oil-exporting governments to stimulate economic growth through expansionary budgets.

Low oil prices have resulted in subdued economic performance in the region in previous years and incentivised governments to pursue ambitious fiscal consolidation measures, including cutbacks on capital expenditure and benefits to public-sector employees, reform of energy and water subsidies, the introduction of land taxes and the introduction of 5% VAT. The pace of consolidation softened in 2019, as most governments approved expansionary budgets with particular focus on developing the non-oil economy and public infrastructure along with

Downward pressure on oil prices, resulting in an estimated loss of US$270 billion in GCC government revenues according to the IMF.

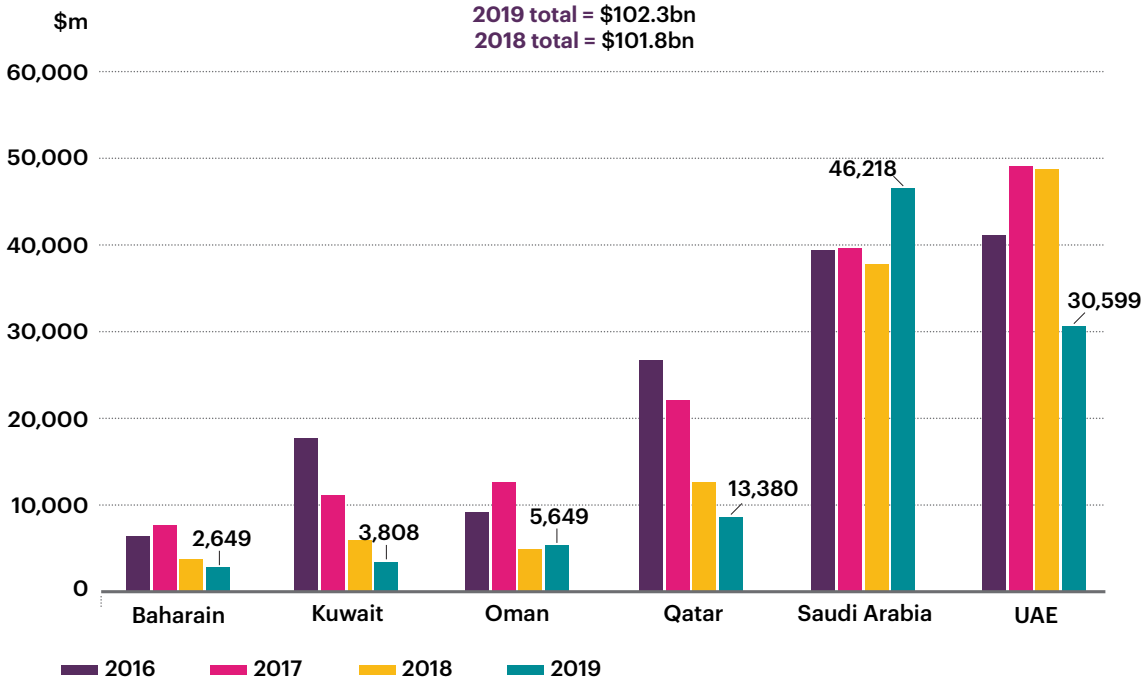
pursuing various National Development Plans such as 'Saudi Vison 2030' and 'Qatar National Vison 2030'. The initial outlook for 2020 showed signs of positivity and saw the UAE approve the largest budget since the establishment of the country, whilst Saudi Arabia intended to reinvest the part-sale of state-owned assets such as Saudi Aramco to offset a marginal decline in Government expenditure. The unforeseen economic impacts of COVID-19 have forced governments to curtail some non-essential spending and focus on preservation rather than growth. In addition, some austerity measures have been reinstated, including the implementation of a 15% VAT rate in KSA that came into effect on 1st July 2020, a trend which is likely to continue as governments seek to protect finances.

Construction

Construction activity plays a significant role in regional economic development in the region. In 2018, US$101.8 billion worth of projects were awarded across the GCC region compared to US$102.3 billion in 2019, and this muted growth is reflective of the challenging environment mentioned above. At the outset of 2020, with macroeconomic headwinds showing no sign of abating in the short term, a large-scale region-wide pickup in project awards in 2020 was unlikely. Despite this, there was an estimated US$1.45 trillion projects planned across the GCC states, many of which were supported by solid fundamentals, including increased population growth, young demographics and a growing requirement for infrastructure across multiple sectors. Whilst the monetary impact of COVID-19 on estimated project awards is yet to be established, pandemic-related lockdowns are having a significant impact on the construction sector and will impact underlying fundamentals.

Where growth was previously forecast, it was generally supported by government commitments to increase spending in sectors such as infrastructure, healthcare and education. In recent years, GCC governments have also been making remarkable investments in the tourism and hospitality sectors, as well as leisure attractions. Saudi Arabia, in particular, which has been active in pursuing both social and economic reform, has launched a variety of megaprojects, including the Red Sea Project, Qiddiya Entertainment City, Project Neom and Diriyah Gate, which have a combined value of US$532 billion. Considering the current pandemic, workload expectations over the

Value of GCC contract awards by country, 2016 - 2019 ($m)



Source: MEED

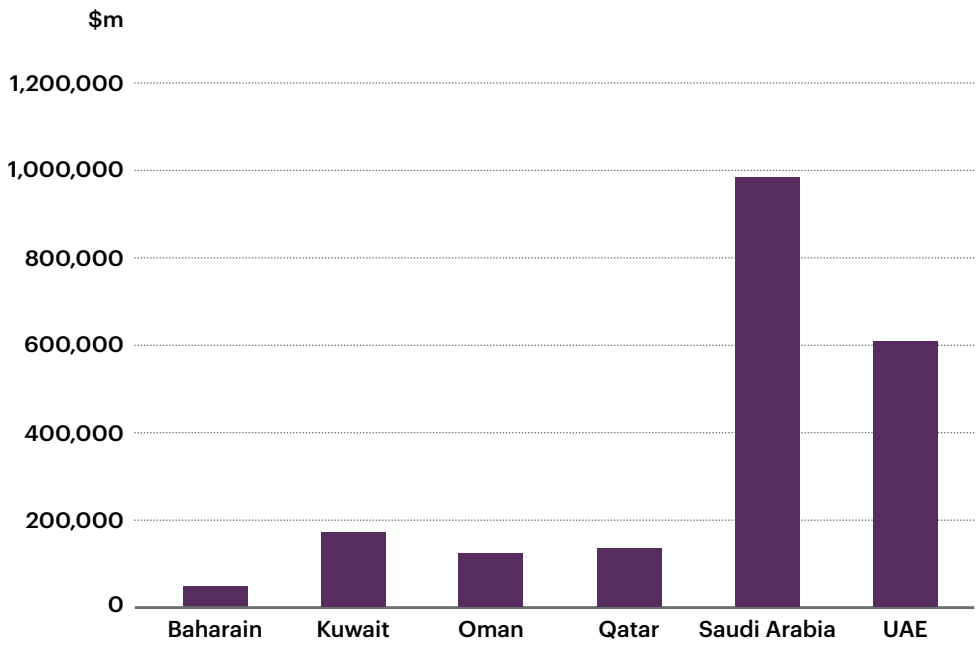
next twelve months generally depend on an allocation of government funds to stimulate economic recovery and curtail the economic impact of COVID. Given the turmoil in the oil markets and lack of activity in various market segments, the feasibility of many projects, including government-led infrastructure works, will be closely scrutinised. Some economic development programmes have already felt the impact of funding reallocation, such as Ghadan 21 - a US$13 billion development programme in Abu Dhabi, which has seen some projects being suspended and project teams demobilised. Workloads are also reported to have fallen across both public and private sectors in most Middle East counties.

Whilst the UAE has historically been the market leader in the GCC construction market, Saudi Arabia closed the gap in recent years, with the value of planned projects estimated to be US$1.2 trillion, compared to US$780 billion in the UAE. It is worth noting that if the Saudi forecast was to be adjusted for Project NEOM, estimated to cost US$500 billion alone, the pipeline in both countries is relatively similar in value terms. Meanwhile, Kuwait, Qatar and Oman, whilst being the next largest markets in terms of pipeline value, are significantly smaller than both Saudi Arabia and the UAE.

The impact of COVID-19 on construction industry output is yet to be fully determined, and is dependent on how quickly restrictions ease and economic activity resumes. Notwithstanding this, further jobs losses are expected across the GCC, with financial constraints and insufficient demand being cited as two driving factors. Hospitality and retail segments are set to be impacted heaviest in the short-term on the back of air travel restrictions and decreased footfall, whilst the impact of working from home may be a catalyst for longer-term trends, such as consolidation or downsizing of office space, impacting the commercial sector. New ways of doing business, including virtual meetings in lieu of business travel may have longer term impacts on specific project viability in associated market segments.

On a positive note, pandemic-related restrictions have served as a catalyst for further advancement in

Value of planned and unawarded GCC projects ($m)



Source: MEED

the technology sector. The data centre market in the GCC, in particular, has remained relatively resilient as the shift towards virtual working platforms and online shopping is compounded by longer-term trends, such as investment in 5G technology, thus creating demand in the technology market segment.
Despite some disparity across the GCC countries, tender prices have experienced a downward trend, which is expected to continue. A recent survey forecasted a 4% decline in tender prices in the UAE, despite rising material costs, which will put pressure on contractor margins. Whilst labour costs are expected to decrease as contractors move to lower direct costs, this may be offset to a certain extent by a decline in productivity on-site, which is estimated to vary between 10% to 30%.

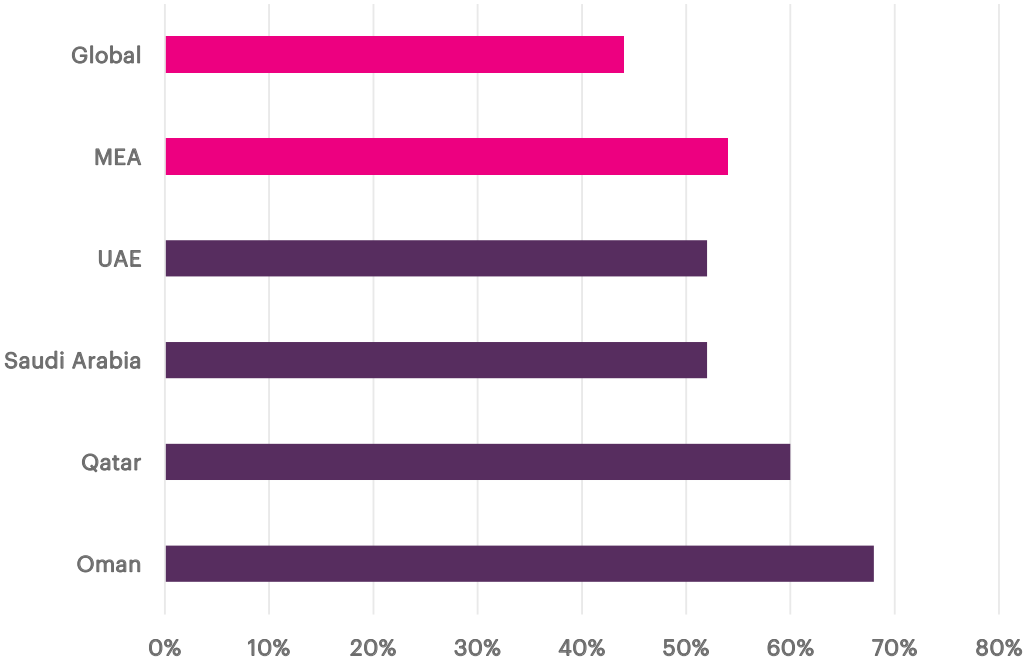
The downward pressure on contractor margins and tender prices is evident in an emerging trend of 'below-cost bidding', with 50% of respondents in a recent survey by the RICS reporting that they were receiving bids below cost. Should this trend continue, it poses a risk to the long-term financial stability of contractors engaged in the practice and their ability to successfully deliver projects which have been awarded.

RICS Consensus 12-month Expectations

	Tender Prices	Construction Costs	Materials Costs	Skilled Labour*	Unskilled Labour
Middle East	-0.1%	+0.4%	+0.1%	+0.0%	+0.0%
Oman	-3.3%	-0.6%	+0.7%	+0.3%	+0.1%
Qatar	-.09%	+2.7%	+3.7%	-0.1%	-0.7%
Saudi Arabia	+1.4%	+6.5%	+6.5%	+4.4%	+3.0%
UAE	-4.1%	-0.1%	+1.8%	-2.3%	-2.2%

Source: RICS Q2 2020 Middle East & Africa Construction Monitor

Emerging trend of 'below-cost bidding'



Source: RICS Q2 2020 Middle East & Africa Construction Monitor

Summary:

As a market that is already susceptible to volatility as a result of fluctuating oil prices, the Middle East has been dealt a double blow by the impact of COVID itself, coupled with the impact that COVID is having on the oil market. The pre-COVID growth forecasts were driven primarily by planned expenditure on large infrastructure and capital projects, so the austerity measures being employed will undoubtedly have an adverse impact on growth in the short to medium term across the region.

As an industry that plays a significant role in the economic development of the region, the full impact of the pandemic for construction remains to be realised, but already, it is evident that the effects of the lockdowns are being felt and will impact underlying fundamentals. While many sectors will be profoundly affected, such as retail and hospitality, others will see a shift in the new norm, such as the rethinking of commercial spaces to facilitate the new distancing measures and other regulations, and some, such as data centres will see an upturn due to increased demand for web services and virtual platforms. All in all, similar to most other regions, the long-term impacts remain to be seen.

Sheikh Khalifa Medical City , UAE
Architect:
Skidmore, Owings & Merrill (SOM)
Linesight services:
Cost Management

1. Kingdom of Saudi Arabia Market Review

James Askew, Senior Cost Manager at Linesight, discusses the economic and construction industry performance for the Kingdom of Saudia Arabia.

Economic overview

Saudi Arabia recorded negative GDP growth of 1%, totalling US$189.4 billion within the first quarter of 2020, down 3.2% from Q1 2019. Pre-COVID, the International Monetary Fund (IMF) forecasted that economic growth in the Kingdom would reach 3% in 2020 – however, with the impact of COVID and the large cut in oil production, the figure is likely to be lower, with the World Bank suggesting a growth rate of 2.1% on average over 2020 and 2021.

Whilst the long-term, economic implications of COVID-19 remain relatively unknown, it is clear that it has contributed to the cuts in oil production and subsequent price decline to below US$20 per barrel in Q1 2020, which is particularly impactful on the Kingdom, as the largest oil producer in the world. In fact, the pandemic is dealing a double blow to Saudi Arabia, with a high volume of COVID cases, as well as energy market turmoil, saddling the Government with a budget deficit that could rise to around 15% of GDP this year. Officials have been reported to have doubled their borrowing plans and implemented a series of austerity measures, including raising the VAT rate from 5% to 15%.

Non-oil revenue is projected to constitute 38% of overall revenue, a 4% decrease from the same period in 2019, in which it grew at its fastest pace since 2014, with the majority of the increase driven by the retail, hotel and financial sectors. Oil growth decreased by 3.6% in 2019, with GDP growth below the official forecast of 0.9% at just 0.3%, according to the Saudi Arabia General Authority for Statistics. Whilst it was positive that non-oil revenue grew in 2019, it is highly likely to reduce in 2020, and therefore increased investment is key to continue the support of non-oil growth and progress key projects.

Labour market

The pandemic is having a notable impact on both current and future projects, and one major factor in this could be the Q4 2019 to Q1 2020 increase of 243,000 expats in the labour market - the largest increase in over three years. However, GaStat data showed that in Q1 2020, 342,000 expat work visas were issued, with only 6% utilised within Q1 2020. It is likely that these visas were not utilised due to COVID-19 and the border restrictions, although this is not confirmed.

Construction

The Kingdom has been working on several economic reforms for some years, most notably within the ‘Vision 2030’ - Saudi Arabia’s ambitious social and economic reform plan set to diversify its oil-reliant economy away from its dependency on finite natural resources. Whilst this is still the main focus, the Kingdom is hoping to increase the production of gas with the recently announced Jafurah field helping to somewhat offset the

Saudi Arabia recorded negative GDP growth of 1%, totalling US$189.4 bn within the first quarter of 2020.

impact of lower oil prices by contributing US$20 billion a year towards GDP.

As part of this initiative, Saudi Arabia is attempting to become a hub for tourism and other service industries, with large infrastructure projects such as the US$500 billion NEOM project. The first phase of construction is complete with NEOM Bay Airport and several residential districts opened in 2019. The project is 30 times larger than New York City, with promotional material promising "25,000 square kilometres of inspiration". Plans include hotels, residential areas and a causeway linking Saudi Arabia with Egypt, and it continues to attract overwhelming interest from foreign investors and is likely to result in vast opportunities for companies working within the construction industry.

Looking to another Saudi megaproject, Al Diriyah Gate CEO, Jerry Inzerillo, has confirmed that the pandemic will not stop the Al Diriyah Gate Development. It has been reported that the Crown Prince Mohammed bin Salman has told planners to move "full speed ahead".

With the Kingdom's pre-COVID focus on attracting tourists, opening its borders in June 2019, and providing tourist visas on arrival for non-religious tourists and with tourism in mind, the Kingdom plans to spend US$1.1 trillion on infrastructure projects alone in the next 20 years. Work continues on key infrastructure developments within the Kingdom, and works fundamental to 'Vision 2030' and the 'G20' have begun including the King Abdullah Financial District, US$20 billion Diriyah Gate Development, US$10 billion Red Sea Development and US$5 billion Qiddiya Entertainment Project.

Key sporting events have recently been held in Saudi Arabia, promoting the Kingdom's recent change in policy and move away from an oil-reliant economy, and in this vein, Formula E and the Heavy Weight IBF 'Clash of the Dunes' boxing match were held in Al Diriyah during the latter quarter of 2019.

The Initial Public Offering (IPO) of Saudi Aramco, one of the world's largest companies by revenue, raised US$25.6 billion, valuing the company at approximately US$1.7 trillion. It was previously hoped that the IPO would raise US$100 billion, with the shortfall raising concerns for Saudi Arabia's investment plans and future potential projects.

The previous and continued increase in fuel and utility prices, coupled with the introduction of expat levies, are leading to a higher cost of living, and have the potential to have a negative effect on the economy. However, with the proceeds from the IPO of Saudi Aramco and the Public Investment Fund (PIF), a high level of investment within the Kingdom is still likely, which would fund a significant number of construction projects, paving the way for new opportunities and business growth within the GCC.

Summary

As a particularly oil-reliant nation, Saudi Arabia has felt the acute impacts of the pandemic, both via the economic shock itself and the resulting volatility in the oil market. However, given the level of funds available to facilitate a significant level of investment within the Kingdom, it is hoped that these will result in a significant number of construction projects alongside the ongoing megaprojects, to keep the industry buoyant and continue the nation's shift away from such heavy oil reliance towards new opportunities.

1.1. Linesight average Kingdom of Saudi Arabia construction costs 2020

	Cost range US/sq.m.		Unit	MEP incl. @	
	from	to		from %	to %
Commercial/office sector					
Developer standard/investment offices					
Low-rise - medium-rise */**	1,200	1,420	per sq.m.	28%	30%
Medium-rise - high-rise */**	1,375	1,680	per sq.m.	28%	30%
Owner occupier standard offices					
Low-rise - medium-rise	1,520	1,630	per sq.m.	30%	32%
Medium-rise - high-rise	1,680	1,935	per sq.m.	30%	32%
Residential sector					
Medium quality - villa units	1,050	1,400	per sq.m.	25%	30%
Medium quality - high-rise	1,300	1,540	per sq.m.	25%	30%
High quality - low-rise apartments	1,390	1,740	per sq.m.	25%	30%
High quality - high-rise	1,550	1,900	per sq.m.	25%	30%
Hotel and leisure/retail sector					
Regional shopping centre *	1,420	1,680	per sq.m.	35%	40%
Budget/3 star ***	1,500	1,820	per sq.m.	22%	25%
5 star ***	2,650	3,100	per sq.m.	28%	32%
5 star resort ***	3,000	3,420	per sq.m.	25%	30%
Health sector ****					
District general hospital	2,500	2,850	per sq.m.	35%	40%
Manufacturing sector					
Light industrial	640	815	per sq.m.	25%	30%
Heavy industrial	740	920	per sq.m.	25%	30%
Parking					
Podium car parking	580	730	per sq.m.	15%	24%
Basement car parking	730	830	per sq.m.	15%	29%

Notes:
1. *The above costs are correct as of the beginning of March 2020 and as such, do not account for the impact of COVID, which is yet to be fully realised as the situation continues to evolve.*
2. *All exclude land acquisition costs, external works costs and professional fees*
3. *Excluding VAT*

** Shell and core only; with public areas finished*
*** Excluding super high-rise (low/medium = up to 15 stories; high = 15+; super = 45+)*
**** Including FF&E, excluding OS&E*
***** Excluding medical equipment*

Source: *Linesight*

1.2. Kingdom of Saudi Arabia main contractors

United Engineering Construction
Al Arrab Trading & Contracting
Al Habtoor Leighton Group
Al Latifa Trading and Contracting
Six Construct
El Seif Engineering & Construction
TAV Construction
Consolidated Contractors Company
Habtoor leighton Group
Salini Impregilo
Arabtec Construction
J&P (Overseas) Ltd.
Saudi Bin Laden Group
Shapoorji Pallonji International

Source: *Linesight*

1.3. Kingdom of Saudi Arabia design firms

SNC Lavalin
Arcadis
Benoy
BuroHappold
CH2M Hill
Gensler
Meinhardt
HOK
Skidmore, Owings and Merrill
Saudi Arabian Parsons Ltd. (SAPL) Saudi Diyar
Woods Bagot
Worley Parsons
Zaha Hadid Architects

Source: *Linesight*

2. UAE Market Review

Oliver Keegan, Senior Project Manager at Linesight, discusses the economic and construction industry performance for the United Arab Emirates.

Economic overview

The UAE Central Bank reported economic growth of 2.9% for the nation in 2019. However, unsurprisingly, this growth has been impacted by the COVID-19 pandemic in the first and second quarters of 2020. In the year to Q1 2020, the UAE's GDP is estimated to have contracted by approximately 1%, according to the Central Bank, which has also forecast that GDP will contract by 3.6% for 2020.

However, Oxford Economics expects that the UAE's GDP is to contract by 7.8% in 2020, before returning to the same levels as Q4 2019, during which 1.3% growth was reported by the Central Bank. Employment is also expected to contract by 7.3%. Looking at a breakdown by city, in Abu Dhabi and Dubai, GDP and employment are expected to decline by 7.2% and 5.4% and 7.4% and 9.1%, respectively.

The UAE Central Bank (CBUAE) expects economic recovery will have begun in the second half of this year. Under the Targeted Economic Support Scheme (TESS) by CBUAE, Dh256 billion has been allocated as part of a stimulus package to support the economy. As part of the UAE Central Bank's economic stimulus package, loan-to-value ratios have been increased for first-time buyers by 5% for all property purchases, including off-plan property mortgages. This change was in addition to a range of regulatory changes announced in 2019, which included the announcement of 100% onshore business ownership, easing of visa regulations, the introduction of the golden visa residency scheme and Abu Dhabi's freehold ownership law.

Construction

The UAE construction sector recorded 3.3% growth in 2019, and pre-COVID, 4.3% growth was expected, driven by government initiatives, according to GlobalData. With the virus outbreak and subsequent decline of oil prices, output is now expected to contract by 1.9% in 2020, before recovering to 3.8% growth in 2021.

Residential Sector

Abu Dhabi sales prices fell on average by 8.0% in the year to Q2 2020, while in the rental market,rents softened by 4.7% in the 12-months to May 2020. Similarly, Dubai rents fell on average by 5.6% in the year to May 2020. Whilst there are many challenges facing the residential market in the UAE, historically from a supply perspective and now more so from a demand perspective, authorities and developers have enacted a range of legislation and favorable payment options respectively to support demand.

Office Sector

Average office rents in Abu Dhabi fell by 8% in the year to Q2 2020, with market-wide vacancies registered at 22.1% as of Q2 2020. Dubai is somewhat similar, with average office rents falling by an average of 7%, and prime office rents falling by as much as 6.8% in the year to Q2 2020. Overall, market-wide vacancies registered at 18.7% as of Q2 2020.

The well-publicised Expo 2020 was originally scheduled to open in October 2020 and to end on April 2021. Due to the ongoing pandemic, Bureau International des Expositions (BIE) has approved the one-year postponement of Expo 2020, with the rescheduled opening date now on 1st October, 2021.

The Abu Dhabi government and its related entities are also progressing with approved projects, and even fast-tracking certain expenditures as part of the Ghadan 21 stimulus package. On the other hand, projects in the majority of sectors have experienced delays due the pandemic. This is particularly evident in Dubai, where US$5.8 billion-worth of project work was shelved in Q1 2020. Projects worth US$7.8 billion were completed in

HPE, Dubai
Architect:
Say Studio
Linesight services:
Cost Management

Dubai in the same period, with US$2 billion-worth of contracts awarded during the period, according to MEED Projects.

Summary

While the impact of COVID is undoubtedly being felt in the UAE, there is an expectation that the economic contraction will be relatively short-lived before a return to modest growth is seen. Given that construction remained on-site in the UAE during the pandemic, albeit with reduced productivity and site capacity to adhere to social distancing guidelines, the projected contraction is relatively mild, with a return to growth in output expected in 2021, according to GlobalData.

2.1. Linesight average UAE construction costs 2020

	Cost range US/m2		Unit	MEP incl. @	
	from	to		from %	to %
Commercial/office sector					
Developer standard/investment offices					
Low-rise - medium-rise */**	1,360	1,570	per sq.m.	28%	30%
Medium-rise - high-rise */**	1,500	1,870	per sq.m.	28%	30%
Owner occupier standard offices					
Low-rise - medium-rise	1,550	1,650	per sq.m.	30%	32%
Medium-rise - high-rise	1,680	1,940	per sq.m.	30%	32%
Residential sector					
Medium quality - villa units	1,100	1,400	per sq.m.	25%	30%
Medium quality - high-rise	1,300	1,550	per sq.m.	28%	32%
High quality - low-rise aparts	1,390	1,750	per sq.m.	25%	30%
High quality - high-rise	1,550	1,855	per sq.m.	28%	32%
Hotel and leisure/retail sector					
Regional shopping centre *	1,440	1,760	per sq.m.	32%	35%
Budget/3 star ***	1,630	1,950	per sq.m.	22%	25%
5 star ***	2,700	3,300	per sq.m.	28%	32%
5 star resort ***	3,150	3,550	per sq.m.	28%	30%
Health sector ****					
District general hospital	2,550	3,000	per sq.m.	34%	38%
Manufacturing sector					
Light industrial	680	820	per sq.m.	25%	30%
Heavy industrial	800	950	per sq.m.	25%	30%
Parking					
Podium car parking	670	850	per sq.m.	18%	24%
Basement car parking	760	900	per sq.m.	18%	29%

Notes:
1. *The above costs are correct as of the beginning of March 2020 and as such, do not account for the impact of COVID, which is yet to be fully realised as the situation continues to evolve.*
2. *All subject to site conditions, designs and specification*
3. *All exclude land acquisition costs, external works costs and professional fees*
4. *Excluding VAT*

** Shell and core only; with public areas finished*
*** Excluding super high-rise (low/medium = up to 15 stories; high = 15+; super = 45+)*
**** Including FF&E, excluding OS&E*
***** Excluding medical equipment*

Source: *Linesight*

2.2. UAE main contractors

ALEC
Al Futtaim Construction
Al Naboodah Construction Group
Al Habtoor Group
Al Hamad Group of Companies
Airolink Building Contracting
Arabtec Construction
Arabian Construction Company
ASGC
BeSix Construct
China State Construction and Engineer Corporation
Dubai Contracting Company
ECC
Gulf Asia Contracting
Multiplex Global
Samsung C&T Engineering & Construction
Shapoorji Pallonji
Ssangyong E&C
Trojan General Contracting
United Engineering Construction Company

Source: *Linesight*

2.3. UAE design firms

Aedas
Aecom
Atkins
Archgroup
Arif and Bintoak
Arup
Benoy
BSBG
CallisonRTKL
Dewan Architects & Engineers
Foster and Partners
Gensler
Godwin Austen Johnson
HOK
Jacobs
KEO International Consultants
Khatib & Alami
Kila Design
Kling Consult
Norr Group
Perkins+Will
RMJM
Skidmore, Owings and Merrill
Woods Bagot
WSP

Source: *Linesight*

"The camaraderie amongst the team is fantastic, and facilitated by our forward-thinking, dynamic and approachable leadership team. There is a keen focus on supporting each individual's development, and I am being actively encouraged to further develop my skillset and the attributes needed to progress to a more senior role."

Robert Francis,
Project Manager

3. Kuwait Market Review

John Chavez, Associate Director at Linesight, discusses the economic and construction industry performance for Kuwait.

Economic overview

Kuwait's GDP contracted during the first half of the year, primarily due to low oil prices and the impact of COVID-19. Recent surveys by Bensirri Public Relations (BPR) revealed that 45% of business owners have suspended their activities, with another 26% potentially declaring bankruptcy. Further, the survey indicated that about 39% of construction-related businesses have ceased operations.

Whilst Kuwait is considered the fifth largest OPEC oil producer, with an economy that is highly reliant on the oil and gas sector, returning to an economic performance comparable to that of 2019 will be slow and challenging. Kuwait Oil Company has also confirmed that the intention is to cut its budget by 25% and operating expenses by 18% for the 2020/21 fiscal year, as part of measures to boost "state financial stability". The company also confirmed that some of its proposed projects may have to be cancelled as part of austerity measures.

GDP is expected to decline by 1.1% in 2020, but will pick-up to about 3.4% growth in 2021.

In 2019, the country's economy grew by 0.7% due to the steady expansion of the non-oil segment, driven by continued Government expenditure and increased consumer spending. Subject to post-pandemic global economic recovery, the International Monetary Fund (IMF) have forecasted that the GDP is expected to decline by 1.1% in 2020, but will pick-up to about 3.4% growth in 2021.

Construction

Kuwait has continued to implement its plans to transform the country through 'Vision 2035', which features key Government projects, aiming to deliver economic diversification and sustainability. This strategy is focused on the development of transport and healthcare-related infrastructure, commercial buildings, industrial facilities, water distillation facilities and renewable energy projects. Authorities have also included plans offor making Kuwait a regional data centre hub as part of its strategy for the future.

Government initiatives focused on transforming the country to a world-class financial and commercial centre, more open to foreign investment and with various megaprojects in the pipeline, are coupled with Kuwait's tax framework and late implementation of VAT in April 2021 to contribute to the development of the construction sector.

One of the most significant projects in the pipeline is the US$20 billion Kuwait Metro, which includes over 60 stations within the country's capital, with some reports suggesting that Kuwait is to link the Metro to its GCC neighboring countries. During the first half of 2019, the total value of active projects in the country was estimated at US$494 billion. However, the impact of the pandemic resulted in a sharp decline during the first half of 2020, with project value contracting by approximately 40%.
Kuwait's government, through the Kuwait Authority

for Partnership Projects (KAPP), has been promoting collaboration between public and private sectors to develop quality infrastructure and services. This policy is considered as a key element of the country's programme, that champions the utilisation of private sector skills and expertise, in order to maximise value for money and service quality. KAPP is currently in the process of initiating several high-impact projects in the power, water/wastewater, education, health, transportation, communications, real estate and solid waste management sectors.

In recent years, Kuwait has been successful in delivering several popular architectural, real estate and infrastructure projects, which include the Kuwait Towers, House of Mirrors, Kuwait National Museum, Al Seif Palace, Liberation Tower, Jahra Medical City, Al Zour Refinery, Sheikh Jaber Causeway and Silk City. Key projects include Kuwait National Petroluem Company's US$12 billion Clean Fuels Project and the Kuwait Integrated Petroleum Industries Company's (KIPIC) US$16 billion Al-Zour Refinery Project, with the construction of the main processing units having reached completion in December 2019.

Summary

Given Kuwait's reliance on the volatile oil market, its economy is expected to contract in 2020 with the economic shock of COVID and the resulting oil price impact. The Government's focus on 'Vision 2035' and other initiatives to deliver economic diversification and sustainability, and position Kuwait as a world-class financial and commercial centre, is propping up the construction industry, which was heavily impacted in the first half of 2020.

A recent survey indicated that about

39%

of construction-related businesses have ceased operations.

3.1. Linesight average Kuwaiti construction costs 2020

	Cost range US/m2		Unit	MEP incl. @	
	from	to		from %	to %
Commercial/office sector					
Developer standard/investment offices					
Low-rise - medium-rise */**	1,050	1,230	per sq.m.	28%	30%
Medium-rise - high-rise */**	1,350	1,630	per sq.m.	28%	30%
Owner occupier standard offices					
Low-rise - medium-rise	1,500	1,620	per sq.m.	30%	32%
Medium-rise - high-rise	1,600	1,920	per sq.m.	30%	32%
Residential sector					
Medium quality - villa units	1,080	1,310	per sq.m.	25%	30%
Medium quality - high-rise	1,300	1,550	per sq.m.	28%	32%
High quality - low-rise aparts	1,380	1,670	per sq.m.	25%	30%
High quality - high-rise	1,450	1,820	per sq.m.	28%	32%
Hotel and leisure/retail sector					
Regional shopping centre *	1,440	1,760	per sq.m.	35%	40%
Budget/3 star ***	1,470	1,950	per sq.m.	22%	25%
5 star ***	2,450	3,100	per sq.m.	28%	32%
5 star resort ***	3,150	3,550	per sq.m.	25%	30%
Health sector ****					
District general hospital	2,500	2,950	per sq.m.	34%	38%
Manufacturing sector					
Light industrial	680	800	per sq.m.	25%	30%
Heavy industrial	750	920	per sq.m.	25%	30%
Parking					
Podium car parking	670	760	per sq.m.	15%	24%
Basement car parking	760	900	per sq.m.	15%	29%

Notes:

1. *The above costs are correct as of the beginning of March 2020 and as such, do not account for the impact of COVID, which is yet to be fully realised as the situation continues to evolve.*
2. *All subject to site conditions, designs and specification*
3. *All exclude land acquisition costs, external works costs and professional fees*
4. *Excluding VAT*

** Shell and core only; with public areas finished*
*** Excluding super high-rise (low/medium = up to 15 stories; high = 15+; super = 45+)*
**** Including FF&E, excluding OS&E*
***** Excluding medical equipment*

Source: *Linesight*

3.2. Kuwait main contractors

Hyundai Engineering and Construction Co.
Petrofac
Mohammed Abdulmohsin Al Kharafi & Sons Co.
Fluor Corporation
SK Engineering & Construction
Kuwait Construction Processing Company (KCPC)
Consolidated Contracting Company (CCC)
M. A. Kharafi and Sons Company
Combined Group Contracting Company
HOT Engineering & Construction Co. - KSCC (HOTECC)
Ahmadiah Contracting & Trading Company
Marafie Group
MNA International Group
Al Hani Group
United Gulf Construction Co. WLL
M.A.G Construction
Alamiah Building Company

Source: *Linesight*

3.3. Kuwait design firms

KEO International Consultants
Fluor Corporation
MNA International Group
Pace Architecture, Engineering, Design and Planning
Atkins
Mott MacDonald
SSH International
WSP
Khatib & Alami
Dar SSH International Consultants
Aecom
Gulf Consult
Associated Consulting Engineers (ACE)
SMEC

Source: *Linesight*

4. Oman Market Review

James Askew, Associate Director at Linesight, discusses the economic and construction industry performance for Oman.

Economic overview

With GDP falling by 1.3% in 2019, and oil and natural gas extraction accounting for 51% of GDP, the Sultanate of Oman is the weakest economic performer of the six GCC states. Furthermore, with COVID dealing a considerable blow to its economy, the outlook for 2020 and 2021 is not hugely positive, with declines of 4.9% and 1.5% expected respectively. Fitch Ratings projects that the nation is set to record a budget shortfall in 2020 of almost 20% of GDP, following a figure of approximately 8% in 2019. However, fiscal reform and the stabilisation of oil prices is expected to bring that deficit back down over the coming two years.

Oman's national oil reserves are projected to last until 2033, and with this in mind there have been several five-year plans in the works, with the latest being 'Vision 2040' - an ambitious social reform strategy to transform Oman's economy by 2040, steering the Sultanate toward fiscal sustainability and a more diversified economy, reducing the need for income based on natural resources.

The Sultanate has introduced relief measures to mitigate the economic impact of COVID, including the Central Bank of Oman injecting additional liquidity of US$20 billion into the economy, including deferment of loan payments, reduction of fees and interest rates, deferral of tax returns, and exemption from tourist and municipality tax.

It has been noted that focus is required on tourism, with the sector in Oman mostly untapped. However, according to the latest data released by the National Centre for Statistics and Information (NCSI), the total sectoral revenue in Oman reached US$3.6 billion at the end of 2018, an increase of 6.6"% on the previous year and it is expected to have increased within 2019, which is considered positive growth for Oman.

When the GCC states agreed to introduce 5% VAT in 2018 following a slump in oil prices generally affecting revenue, Oman deferred. However, they are now expected to implement VAT in 2021, after Saudi Arabia brought its rate up to 15%. The delay is thought to be a setback, and the International Monetary Fund (IMF) highlighted its recommendation that Oman should work harder on fiscal reforms, including expediting VAT and other measures to support Government finances.

Sultan Qaboos bin Said, the longest serving Arab leader who ruled Oman for over 5 decades after he overthrew his father in a coup in 1970 died at the age of 79 in January 2020. He was considered a revolutionary leader, as it is thought that that there were just six miles of paved roads and a small number of schools when he ascended to the throne. Under his reign, Oman's infrastructure has been transformed, including international airports, new road and ports – ultimately turning Oman into a modern and stable Gulf state. Haitham bin Tariq Al Said, the late Sultan's cousin has been sworn into power, and has vowed to uphold the policies of his cousin and continue to promote Oman's 'Vision 2040', of which he served as head of the committee.

Labour force

The number of expats in Oman is decreasing, with COVID taking its toll, and according to the National

The number of expats in Oman is decreasing - down to 1,497,511 at the end of July - the lowest since 2015

Four Seasons, Bahrain

Architect:
Skidmore, Owings & Merrill (SOM)
Linesight services:
Cost Management

Centre for Statistics and Information (NCSI), there were 1,658,111 expatriates in Oman in January. That number went down to 1,497,511 at the end of July. This is the lowest figure since 2015, and it is thought that the current push for 'Omanisation' and labour laws that prohibit a company from employing expats unless they have obtained a permit from the Ministry of Manpower to prove that they have complied with the 'Omanisation' is a contributing factor. Unemployment currently stands at 17%. The World Bank estimates that 40% of its 4.9 million citizens are under 25, and that the youth unemployment rate is 49%.

Construction

The abovementioned exodus of expats has hit construction particularly hard, rendering it one of the industries worst affected by the trend, with over 70,000 workers leaving.

The pandemic has heavily impacted on the residential and commercial sectors, which were already sluggish pre-COVID. There is an oversupply of office space in Muscat, and with more due to be delivered over the coming year, it remains to be seen what the longer-term impacts will be for the sector. For the residential sector, the aforementioned departure of such a substantial volume of expats translated to downward pressure.

The Government is focusing on key programs and projects, with an increased role for the private sector, and an emphasis on public-private partnerships. These include Oman Rail, Port Sultan Qaboos, Port Khasab, South Batinah Logistics Area, Oman Rail, Ad Dhahirah Economic Area, $1.5-billion Low Sulphur Fuel Oil (LSFO) Refinery in Oman and Shinas Port.

The pandemic has heavily impacted on the residential and commercial sectors, which were already sluggish pre-COVID.

Summary

As an already vulnerable economy, Oman was particularly susceptible to the shock brought about by COVID. Bringing down its budget deficit is a priority for the coming few years, as is general fiscal and social reform. Between the impact of the pandemic and 'Omanisation', the labour force has been severely affected, as a considerable proportion of expats have left. For construction and real estate, this exodus has hit hard, and while some sectors were slowing down pre-COVID, and this looks set to be exacerbated by the current market conditions.

4.1. Linesight average Omani construction costs 2020

	Cost range US/m2		Unit	MEP incl. @	
	from	to		from %	to %
Commercial/office sector					
Developer standard/investment offices					
Low-rise - medium-rise */**	730	910	per sq.m.	28%	30%
Medium-rise - high-rise */**	930	1,160	per sq.m.	28%	30%
Owner occupier standard offices					
Low-rise - medium-rise	1,460	1,590	per sq.m.	30%	32%
Medium-rise - high-rise	1,610	1,810	per sq.m.	30%	32%
Residential sector					
Medium quality - villa units	830	1,020	per sq.m.	25%	30%
Medium quality - high-rise	950	1,210	per sq.m.	25%	30%
High quality - low-rise aparts	1,200	1,350	per sq.m.	25%	30%
High quality - high-rise	1,430	1,600	per sq.m.	25%	30%
Hotel and leisure/Retail sector					
Regional shopping centre *	800	1,020	per sq.m.	35%	40%
Budget/3 star ***	1,220	1,520	per sq.m.	22%	25%
5 star ***	1,950	2,430	per sq.m.	28%	32%
5 star resort ***	2,500	3,100	per sq.m.	25%	30%
Health sector ****					
District general hospital	2,360	2,570	per sq.m.	35%	40%
Manufacturing sector					
Light industrial	640	815	per sq.m.	25%	30%
Heavy industrial	740	920	per sq.m.	25%	30%
Parking					
Podium car parking	580	730	per sq.m.	15%	24%
Basement car parking	730	830	per sq.m.	15%	29%

Notes:

1. *The above costs are correct as of the beginning of March 2020 and as such, do not account for the impact of COVID, which is yet to be fully realised as the situation continues to evolve.*
2. *All subject to site conditions, designs and specification*
3. *All exclude land acquisition costs, external works costs and professional fees*
4. *Excluding VAT*

** Shell and core only; with public areas finished*
*** Excluding super high-rise (low/medium = up to 15 stories; high = 15+; super = 45+)*
**** Including FF&E, excluding OS&E*
***** Excluding medical equipment*

Source: *Linesight*

4.2. Oman main contractors

Al Moayyed Contracting Co. W.L.L
Abdulla Hassan Al Durazi & Sons
Ahmed Essa Construction
Ahmed Omer Tradings & Contg. Est
Al Ghanah Cont. Co.
Al Hedaya Contracting Co. WLL
Al Nasir Contracting
Al Shaheen Contracting Est
Aradous Contracting & Maint. Co. W.L.L
Dar Al Khaleej Trading & Contracting Co.
Loqman Al Haddad Contracting S.P.C
M.A.Y Al Mezeal Construction & Services BSC
Mohamed Saif Ajlan Al Mannai Cont. Co. WLL

Source: *Linesight*

4.3. Oman design firms

SNC Lavalin (AECOM & Atkins)
BuroHappold
SSH International Consultants
Arcadis
Mott Macdonald
Parsons International
CH2M Hill
Gensler
Meinhardt
Skidmore, Owings and Merrill
Woods Bagot

Source: *Linesight*

"The management team is very supportive, and operates an open-door policy, meaning they are available at any time for guidance or advice. Linesight has played a key role in me further developing my expertise, and I'm now in a position to offer support to colleagues, passing on that knowledge."

Alen Babu,
MEP Cost Manager

5. Bahrain Market Review

Vincetan Sooriyaarachchi, Contracts Manager at Linesight, discusses the economic and construction industry performance for Bahrain.

Economic overview

As is the case in the vast majority of countries, a sharp contraction is expected in Bahrain, as global demand slows and oil prices decline. Its economy shrank 1.1% year-on-year in Q1 2020, following a 0.4% contraction in the previous three-month period.

The non-oil sector, where the repercussions of the COVID-19 pandemic were more evident, contracted 1.7%, led by restaurants & hotels (-36%); transportation & storage (-6.3%); government services (-2.9%); financial services (-1.6%); and real estate and business activities (-0.4%). Meanwhile, growth was recorded in manufacturing (4.8%); social and personal services (1.3%) and construction (0.3%). On the other hand, the oil sector grew 1.8%, driven by a 12.5% increase in production. On a quarterly basis, GDP fell 2.2%, the largest decline since 2011, compared to a 1.4% rise in the previous period.

In order to stabilise the economy, the Government of Bahrain has recently announced a US$11.4 billion stimulus package to mitigate the economic impact of the pandemic, which includes:

- Increasing the Central Bank of Bahrain's loan facilities to US$9.8 billion, to allow the deferment of debt instalments and the extension of additional credit
- Redirection of all Tamkeen (the Government agency responsible for the provision of loans and assistance to businesses) programmes to support adversely affected businesses and the restructuring of debts issued by the agency.

Construction

During the pandemic, Bahrain's construction industry has been significantly impacted, but remained active, albeit at a slower rate of progress, with no lockdown or curfew imposed. Despite the implementation of several strategies to combat the impact of the virus, it has hampered productivity on ongoing projects.

Annual GDP from construction fell slightly from US$ 631 million in Q4 2019 to US$624 million in Q1 2020. In the long-term, it is projected to trend around US$660 million in 2021 and US$676 million in 2022.

It is anticipated that going forward, increased preliminary costs as a result of setting up sites to meet the COVID-19 restrictions will be felt, including items such as the supply of PPE, appointment COVID-19 Compliance Officers, etc.

Summary

While Bahrain is undoubtedly feeling the impact of COVID-19 on both its economy and construction industry, it is hoped that the measures and stimulus packages being implemented by the Bahrain Government will help to offset some of the detrimental impacts of the virus. However, the long-term implications of the pandemic remain to be seen, depending on the occurrence and severity of a second wave of the virus.

Bahrain's economy shrank by 1.1% year-on-year in Q1 2020, following a 0.4% contraction in the previous quarter.

5.1. Linesight average Bahraini construction costs 2020

	Cost range US/m2		Unit	MEP incl. @	
Commercial/office sector	from	to		from %	to %
Developer standard/investment offices					
Low-rise - medium-rise */**	960	1,290	per sq.m.	28%	30%
Medium-rise - high-rise */**	1,150	1,550	per sq.m.	28%	30%
Owner occupier standard offices					
Low-rise - medium-rise	1,500	1,630	per sq.m.	30%	32%
Medium-rise - high-rise	1,600	1,900	per sq.m.	30%	32%
Residential sector					
Medium quality - villa units	900	1,280	per sq.m.	25%	30%
Medium quality - high-rise	1,200	1,450	per sq.m.	28%	32%
High quality - low-rise aparts	1,330	1,600	per sq.m.	25%	30%
High quality - high-rise	1,500	1,820	per sq.m.	28%	32%
Hotel and leisure/retail sector					
Regional shopping centre *	1,080	1,500	per sq.m.	32%	35%
Budget/3 star ***	1,325	1,700	per sq.m.	22%	25%
5 star ***	2,550	3,050	per sq.m.	28%	32%
5 star resort ***	2,850	3,400	per sq.m.	28%	30%
Health sector ** **					
District general hospital	2,430	2,710	per sq.m.	34%	38%
Manufacturing sector					
Light industrial	680	800	per sq.m.	25%	30%
Heavy industrial	750	920	per sq.m.	25%	30%
Parking					
Podium car parking	600	760	per sq.m.	18%	24%
Basement car parking	720	880	per sq.m.	18%	24%

Notes:

1. *The above costs are correct as of the beginning of March 2020 and as such, do not account for the impact of COVID, which is yet to be fully realised as the situation continues to evolve.*
2. *All subject to site conditions, designs and specification*
3. *All exclude land acquisition costs, external works costs and professional fees*
4. *Excluding VAT*

** Shell and core only; with public areas finished*
*** Excluding super high-rise (low/medium = up to 15 stories; high = 15+; super = 45+)*
**** Including FF&E, excluding OS&E*
***** Excluding medical equipment*

Source: *Linesight*

5.2. Bahrain main contractors

Al Moayyed Contracting Co. W.L.L
Abdulla Hassan Al Durazi & Sons
Ahmed Essa Construction
Ahmed Omer Tradings & Contg. Est
Al Ghanah Cont. Co.
Al Hedaya Contracting Co. WLL
Al Nasir Contracting
Al Shaheen Contracting Est
Aradous Contracting & Maint. Co. W.L.L
Dar Al Khaleej Trading & Contracting Co.
Loqman Al Haddad Contracting S.P.C
M.A.Y Al Mezeal Construction & Services BSC
Mohamed Saif Ajlan Al Mannai Cont. Co. WLL

Source: *Linesight*

5.3. Bahrain design firms

MSCEB
Gulf House Engineering
Arcadis Consulting Middle East
Baker Wilkins & Smith
Mott Macdonald
W S Atkins and Partners
EMGA
Aecom Middle East
Cowi Gulf
Worleyparsons
Benoy Limited
KEO International
DAR SSH International Engineering

Source: *Linesight*

W Hotel, Dubai

Architect:
RMJM

Linesight services:
Cost Management

Review and Outlook

Global Insights

Global Market Review

In just a matter of months, the global landscape has changed dramatically, with COVID-19 having a profound impact on economies around the world.

In our early March Knowledge Centre update, we referred to COVID-19 as a new threat to the global economy, following eighteen months of uncertainty arising from the US-China trade war, which appeared to be coming to an end with the signing of the Phase 1 deal in early 2020. In a matter of mere weeks, the novel coronavirus moved from an impending threat to a confronting reality, and has had an unprecedented impact on both public health and the economy.

Recovery and resurgence in APAC

As the region in which the COVID-19 outbreak originated, many parts of Asia are a number of weeks ahead of the rest of the world in terms of recovery. Indeed, as other parts of the world seek to curb the spread of the novel virus, they can look to countries such as China, to review the efficacy of various policy responses in efforts to soften the economic shock.

The pandemic initially caused shutdowns in Asia earlier than elsewhere in the world, with industry grinding to a halt in February and having a significant impact on global supply chains. COVID-19 then brought much of the world's economic activity to an abrupt standstill, serving a secondary blow to the export-reliant Asian economy.

Asia's purchasing managers' indices (PMI) in August show up some mixed results – with Indonesia and Taiwan above the 50 mark, and the latter recording its highest figure in two years at 52.2, and Japan, South Korea, Malaysia, the Philippines and Vietnam all sub-50, indicating contraction. However, some of these sub-50 figures are still indicating gradual improvement and recovery, particularly in the big manufacturing nations. Bloomberg Economics also reported that a private gauge of China's factory activity grew at the fastest pace in August since January 2011, helped by improving exports and continued domestic recovery.

Having seen economic growth of 6.1% in 2019, despite the trade war, the Chinese economy was heavily impacted in Q1 with a 6.8% decline before a return to positive growth of 3.2% in Q2. Although the Phase 1 agreement seemed hopeful with regards to the US-China trade war, tensions have once again intensified, which is having an impact on the Chinese economy and remains a risk factor.

In India, pre-COVID, some important reforms, while expected to benefit the economy in the longer term, such as a unified tax system and demonetisation, have been disruptive in the short term, and India has since been faced with considerable economic challenges due to the pandemic. Q2 was India's worst quarter ever recorded, with a 23.9% contraction and the IMF is projecting a 'historic low' for 2020, with a 4.5% contraction, before a return to growth is expected in 2021.

Although Australia appeared to have a good handle on containing the virus by June, and was beginning to focus on awakening its economy, there has been a recent resurgence in the virus and a recession has hit the nation for the first time in 28

years. A contraction of 6% is expected for 2020 before a prolonged recovery period kicks in over the coming couple of years. The Government introduced a considerable stimulus package, including the AU$130 billion JobKeeper payment, which aimed to keep Australians in work and support businesses that had been significantly affected by the economic impact of the virus.

Singapore had an austere reaction to the pandemic, implementing an eight-week circuit breaker to suppress the virus. It entered a recession in Q2 with a 41.2% contraction quarter-on-quarter. To date, the government has announced four support packages worth close to S$100 billion (nearly 20% of GDP), and has not ruled out announcing another package.

Plummeting activity in Europe

Europe has been particularly hard-hit by the pandemic, between the public health impacts and the strict lockdowns seeing economic activity plummet, and the eurozone recorded an economic contraction of 11.9% in Q2.

Although the European Central Bank acted quickly upon the onset of the virus, with significant stimuli put in place to prop up the regional economy, it now appears that even more stimuli will be required from the ECB to tackle the disinflationary impact. Inflation in the eurozone was negative in August for the first time in over four years, with a figure of -0.2% recorded across the 19 countries, well below the ECB's target of 2%. While it is hoped that this is relatively temporary and that a rebound is in the near future, Brexit remains a significant risk, in addition to the pandemic.

Although many European countries looked to be making a recovery in July, as lockdown and restrictions were lifted, a marked slowdown was seen in August as COVID cases rose again in some countries, with the eurozone PMI dropping from 54.9 to 51.6. Unemployment hit 7.9% in July, up from 7.7% in June, although a Reuters survey of economists had projected a slightly higher figure of 8%.

As Europe's largest economy, Germany, which was already enduring a period of political instability and ongoing economic uncertainty, has reported Q2 as its worst quarterly performance on record, with total output falling by 10.1%. Despite Germany not being as reliant on tourism as other European countries and the public health effects not being as stark, consumer spending has nosedived, and this has been coupled with the steep decline of exports and global trade, which are significant contributors to its economy. While its economy is doing better than initially expected, the aforementioned sluggish demand may prolong the recovery period. Germany's political landscape is in a state of flux, as far-right and the green parties gain popularity, and the once-powerful democratic left has become alienated from the industrial, working-class base.

Meanwhile the French economy, Europe's second largest, saw GDP decline by 13.8% in Q2, although there was moderate improvement in May and June as lockdown measures eased. It was reported that economic activity was down 7% year-on-year in July, albeit an improvement on previous months, as construction activity ramped back up. Spain, however, has recorded its worst recession of modern times, with the economic shock leading to declines of 5.2% in Q1 worsening to 18.5% in Q2, coming out as the eurozone's worst performer.

The Irish economy is expected to shrink by 8.5% this year, and the Government's budget deficit increased to €9.5 billion in August, as VAT receipts reduced and spending on the likes of income supports related to the pandemic soared, compared to a deficit of €625 million this time last year, marking a year-on-year

A contraction of 7.3% is expected in the Middle East oil-exporting countries as of July 2020.

deterioration of €8.8 billion. In addition to contending with COVID-19, Ireland stands to be one of the most impacted countries in the eurozone at the hands of Brexit, with the lack of direction adding to the uncertainty. Furthermore, as a country that is heavily reliant on FDI, the performance of the US economy is particularly impactful.

As the end of the Brexit transition period fast approaches, and the economic shock of COVID continues to be felt, the UK has entered a recession for the first time since 2009, with a decline of 2.2% in Q1 followed by a negative figure of 20.4% in Q2 – the steepest decline on record. The Government has put in place various packages and supports to mitigate the negative impacts and start on the road to recovery, but it is fair to say that economic recovery will be heavily dependent on any recurrence of the virus and whether post-Brexit trade deals are secured.

Israel has posted its worst performance in more than 40 years in Q2, coupled with the CBS (Central Bureau of Statistics) reporting a 28.7% decline. This follows a 10.1% contraction in Q1, after 3.4% growth in the second half of 2019. The country's high-tech landscape has been largely unscathed in comparison to other sectors of the economy. The ripple effect from the pandemic has not been felt so far in the sector, but a slowdown is expected as the pandemic continues.

Record contraction for the US

The US started the year with strong optimism, but reported its sharpest contraction on record (since 1947) in Q2, at a rate of 32.9%. While it was hoped that recovery would ensue quickly, the second wave of the virus in some locations and resulting measures to suppress it infer that it may take longer than initially anticipated.

As the main driver of the US economy, consumer spending is a particularly important indicator, and declined by 10.7% year-on-year in Q2. Unemployment stood at 10.2% in July, down from 11.1% in June. In addition to the pandemic, rising tensions again between the US and China also pose a significant risk to its recovery.

Looking forward, unsurprisingly, projections for 2020 have been curtailed significantly, with GDP now expected to contract by 6.5%. Key commodities and materials have already seen a drop in prices, with oil and steel products bearing the brunt of this decline. Production facilities are slowing down, and in some cases, closing completely, which raises concerns over the ability to increase supply once demand returns.

Continued volatility in the GCC

In addition to COVID, oil prices, geopolitical tensions, global trade wars and macroeconomic performance continue to have a significant impact on growth and make the GCC less predictable than most major global markets. A contraction of 7.3% is expected in the Middle East oil-exporting countries as of July 2020. In addition to the effects of COVID, the GCC remains highly dependent on the oil economy, and the market volatility will undoubtedly have a role to play in terms of the pace of recovery post-pandemic.

The UAE Central Bank has forecast economic contraction of 3.6% for 2020, having put together a comprehensive stimulus package to support the economy, with increased loan-to-value ratios for first-time home buyers, as well as the range of regulatory changes announced in 2019.

The pandemic is dealing a double blow to Saudi Arabia, with a high volume of COVID cases, as well as energy market turmoil, including cuts in production and an oil price decline to below US$20 per barrel, saddling the Government with a budget deficit that could rise to around 15% of GDP this year. Officials have been reported to have doubled their borrowing plans and implemented a series of austerity measures, including raising the VAT rate from 5% to 15%.

KIm Hegarty
Director

GLOBAL INSIGHT

The evolution of data centres

By 2025, the International Data Corporation (IDC) projects that the global need for data will skyrocket to 163 zettabytes, and COVID-19 has further increased our reliance in the interim. But how is this dependency on data in our day-to-day lives affecting the data centre sector?

Gavin Flynn,
Program Director

Eoin Byrne,
Associate Director

Today's world is dependent on data, and that dependency has been exacerbated by the COVID-19 pandemic. By 2025, the International Data Corporation (IDC) projects that the global need for data will skyrocket to 163 zettabytes. From our banking infrastructure to our smart homes, technology and information play an increasingly crucial role in every aspect of our daily lives. This demand will continue to propel the data centre market, which has changed dramatically since the 1940s, when large computer rooms like the Electronic Numerical Integrator and Computer (ENIAC) became the predecessors of modern data centres. From 2019 to 2023, the global data centre market size is expected to grow by US$284 billion, at a compound annual growth rate (CAGR) of more than 17%. But with the accelerated pace of innovation calling for facilities that are built faster, on tighter budgets and to evolving specifications, the construction industry must first understand the new challenges impacting the market. By bringing improved construction management methods like cost management, procurement and supply chain management, the industry can address the new challenges related to cost and time to market.

The impact of cloud and edge computing

The adoption of cloud infrastructure has heavily influenced the requirements of modern data centres. With the advent of cloud-based software platforms, the organisation of resources has shifted to hybrid cloud systems, which pools off-premises and on-premises resources to optimise digital processes.

Another shift in workflows that affects the market is the rise of edge computing. More Internet of Things (IoT) devices, and the increased need for real-time data analytics and interactions, have pushed the demand for applications to have their computing processes closer to end users, which is usually at the edge of a network. By 2025, it is projected that 75% of enterprise-generated data will originate and be processed outside of traditional data centres or clouds.

This restructuring of digital resources has caused many enterprises to begin shifting from owning or operating their own data centres to incorporating colocation and managed hosting services. Businesses are now spending more on cloud infrastructure services than on data centre hardware and software: from 2009 to 2019, spending on cloud infrastructure services has grown by 56% annually to nearly US$100 billion, while annual enterprise spending on data centre hardware and software grew by only 4% on average.

Hyperscale and colocation

This substantial change in how digital resources and infrastructures are managed has boosted the hyperscale market, but also shortened project timelines. More than half of data centre hardware and software spending now comes from cloud providers' hyperscale facilities. This massive demand for more capacity means that previously acceptable project durations are no longer sustainable. Providers must explore other options to reduce their construction schedules, which can include changing designs, land banking, developing cold shells and applying pressure to the construction market to match the speed of data centre growth. The added demand has a domino effect. If hyperscale facilities and their supply chains cannot meet the need for more capacity, enterprises can lease more space from colocation providers to handle changing workload requirements.

Modular construction

Another way in which data centre demands can be met is by adopting a modular construction approach. By applying modular techniques, speed to market can be addressed with an efficient supply chain. Modules can be manufactured offsite and tested for compliance, while the shell and core are built on location. Once the modules are ready, they can be shipped to the site and installed quickly. The simultaneous progress of all elements of the build shortens schedules significantly, with a 25-30% reduction in the time needed to build and commission a modular project.

There is also the added benefit of cost efficiency when adopting a modular approach. This is achieved by standardising certain building materials and designs. The modular method also employs economies of scale, where building materials that are mass-produced can be made at a lower cost.

Supply chain and procurement management

While modular construction methods may help in preventing delays and cost overruns, supply chain and procurement management processes are also extremely important tools that can be used to drive down costs and control project schedules. With market growth comes stress on the pool of available equipment manufacturers and suppliers, and if there are delays to equipment deliveries, then there will be interruptions in the overall project schedule. Equipment is a critical part of the project and can have a direct impact on a provider's ability to complete builds on time. By having an established supply chain with robust contracts, providers can take proactive steps to protect themselves.

Vendor Managed Inventory (VMI) is another key element. With the market moving towards more cost effective and consistent oversight of large equipment, VMI provides suppliers or the supply chain with more certainty around the construction project pipeline. This in turn helps them to be more economical and flexible to align with their customers' demands. VMI also enables owners and data centre providers to reduce their overall lead time. Collaboration and information sharing between clients and suppliers are essential to drive these results. By implementing supply chain and procurement management processes, and working closely with suppliers, project costs can be reduced and delays can be minimised.

The next step in data centre construction

The changing requirements of data centre builds and the growing demand for capacity highlights the need for a solution that can bring projects to market quickly and within a reasonable budget. Providers must now look beyond traditional construction techniques to meet market demands by employing a developed approach to procurement and supply chain management in navigating the new age of data centre construction.

GLOBAL INSIGHT

The impact of COVID on the supply chain

The supply chain has been one of the key casualties of the pandemic, with significant disruptions to delivery schedules and material supply remaining a core challenge.

Neil L Doyle,
Director

From the very early stages of the COVID-19 pandemic, with its outbreak in China and its proliferation around the world, and the subsequent and ongoing lockdown periods, the impact on the supply chain has been one of the key considerations and vulnerabilities for the construction industry. Significant disruptions to delivery schedules and material supply remain a key challenge, with diversification and strength within the supply chain now a fundamental objective. With the risk of financial instability, the strain on resources, and reduced efficiencies, lower working capacities and increased sanitation checks leading to longer lead times to contend with, there are three core pillars to focus on with regards to securing the supply chain, as discussed below; investment, diversity and resilience.

Investment

Construction is an essential component in the recovery of the global economy, constituting a key contributor to GDP for most countries and a vital source of demand for raw materials. As the industry continues to recover and restart, investment in the supply chain is a fundamental requirement across all levels.

Private investment and financial support from clients and Tier 1 suppliers should be provided to the lower levels of the supply chain to protect and secure it, and avoid further casualties of COVID-19. These lower levels are key to a successful recovery of the construction industry, and with numerous suppliers affected by the pandemic, the focus should be to return to pre-COVID levels. Equity investments and acquisitions are crucial to the re-emergence of the supply chain. It is also imperative that government stimulus packages are used to restart the economy and provide a boost to the lower levels of the supply chain to return to operations. The current shortage of materials will continue in effect if government support is not provided.

Lastly, with the delays caused by COVID-19, the sharing of business forecasting and planning is imperative to securing a supply chain. Many businesses are now employing the use of advanced purchasing and increasing inventory levels to provide short-term security in the supply chain. While this will provide encouragement to the suppliers, the onus must be on the supplier to maintain pricing levels and not pass the costs of inventory storage to the consumer.

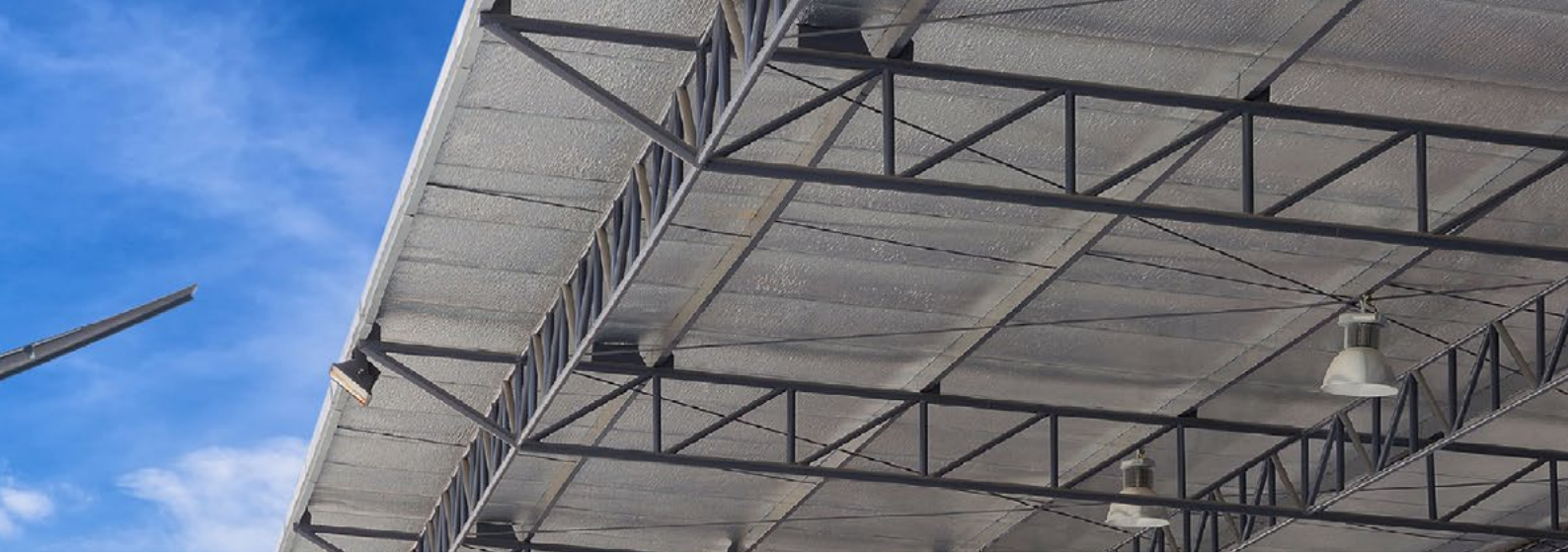
Diversity

With the considerable disruptions to the supply chain, which are well documented at this stage, there has been an increased focus on sourcing more local suppliers, who have manufacturing capacity and materials available to circumvent the overseas shipping delays. This includes Tier 1 suppliers looking into local suppliers, with an overall shift away from dependency on cheaper produce available from other regions. If COVID has highlighted anything to the wider industry, it has been the overreliance on China as the factory of the world, and there is now a marked effort to look at other low labour cost locations as alternatives.

The pandemic has undoubtedly spurred on key improvements across the industry and the supply chain, including innovation to maintain agility in the sources of supply and to mitigate the risk of issues in the supply chain. The ability to move quickly to activate secondary supplier relationships, and secure additional critical inventory and capacity is key. It may also be prudent to identify suppliers with shared resource pools for raw materials inventory, where it applies. Overall, the adaptability of suppliers is coming to the fore.

Furthermore, COVID-19 has impelled the digitalisation of supply chain management, innovation and the advancement of technology. This extends across resource planning, supporting increased communication without the need for complex travel arrangements and enhanced supplier relations.

The severe impact we have all witnessed within supply chains around the world has led to a rethink around different supplier resources, and mapping those out to reduce the impact in the supply chain when 2nd and 3rd tier suppliers can't meet demand. While it can be expensive as it requires time to build up a good



risk-mitigation strategy and an updated list of companies in the market, it is ultimately worth it to avoid disruption at times like this. Lastly, the importance of better due diligence checks and increased awareness across the supply chain cannot be underestimated. It is imperative to know all of the supplier base below level 1, and where the supply comes from to secure business continuity. There is also, of course, a need to now tighten up supplier selection protocols. updated list of companies in the market, it is ultimately worth it to avoid disruption at times like this.

Lastly, the importance of better due diligence checks and increased awareness across the supply chain cannot be underestimated. It is imperative to know all of the supplier base below level 1, and where the supply comes from (geographical location) to secure business continuity. There is also, of course, a need to now tighten up supplier selection protocols.

Resilience

Needless to say, resilience within the supply chain has become all the more important in light of the current pandemic. The impact of COVID is reverberating down the chain, through Tier 2, 3 and 4, given the unavailability of raw materials and components to feed up through. With the reduced efficiencies and loss of revenue as a result of less purchasing during the pandemic, financial instability within the supply chain is a risk, and the increased strain on resources may drive some suppliers out of business.

Conversely, some businesses and supply chains have demonstrated their adaptability and changed their approach, and may have excelled during the pandemic due to demand, e.g. PPE, delivery services. We have seen collaboration across the supply chain in some instances, with suppliers working together with a common end goal in sight. Some have even seized opportunities presented by the crisis for growth, with new businesses emerging, although the long-term stability and viability of these companies could be considered somewhat precarious.

Ultimately, companies are quite susceptible to experience disruption in the challenging times we find ourselves in, with potential factory closures at play, whereby manufacturing can grind to a halt very quickly. Supply lead times are being prolonged by the extra security and sanitation checks required, with packaging, loading and shipping taking longer than previously, and scheduling becoming more difficult.

Summary

Undoubtedly, the impact of COVID-19 on the supply chain has been a huge issue since the early stages of the outbreak and has been felt around the world. It has proved to be a significant challenge and vulnerability for the construction industry, and the need to protect and secure the supply chain has never been more apparent. There are three core pillars that we view to be fundamental in this regard, as discussed above – investment, diversity and resilience.

GLOBAL INSIGHT

Reimagining the post-pandemic workplace

COVID-19 is redefining how we live and work, as well as altering our perceptions of place, and challenging us to rethink the design and functionality of our spaces.

Adrian Farren,
Associate Director

Des O'Broin,
Director

COVID-19 is redefining how we live and work, as well as altering our perceptions of place, and challenging us to rethink the design and functionality of our spaces. The built environment will face new demands post-pandemic, and how we use spaces will change, from repositioning and adapting existing assets to building new ones.

Real estate has undergone quite a bit of change in recent years as is, with the proliferation of concepts such as coworking, flexible working and hot desking, providing new solutions that account for the evolving ways in which we work. However, COVID has certainly served as a catalyst for transformation with the commercial and corporate interiors space. In this piece, we put forward some of the key considerations in this sector for the near future, as we look towards a return to offices.

The role of remote working

Prior to the pandemic, the proportion of individuals working remotely was low, with figures from various labour force surveys indicating that just 5% of the workforce in the EU27 worked from home in 2019 – a proportion that had remained relatively constant since 2009. In the US, this figure was 7% according to the 2019 National Compensation Survey from the Bureau of Labor Statistics. Despite years of predictions about remote working being the upcoming trend and advocacy for its merits, a marked shift never really happened. And yet, suddenly in March 2020, working from home was thrust upon us as the new norm.

While productivity has been relatively unscathed – a recent Stanford report notes a 13% gain in employee performance related to remote working – it is clear that social and collaborative workplace engagement have been casualties of full-time working from home, and that employees may not feel as connected to the company culture as they do when immersed in it physically in an office. It is more challenging to maintain the more personable, human aspect of an organisation remotely.

Going forward, it is likely that there will be a happy medium in terms of remote working, and that corporate workspaces will serve as environments for collaborative working and connectivity, rather than a place where employees come to work on individual projects or tasks.

Density and space utilisation

Pre-COVID, soaring real estate costs were driving higher density and greater utilisation of space. Many large companies were forming global standards of office spaces, that were essentially a kit of parts to be adapted to different locations, such as tech hubs, easily configured offices, open-bench workstation neighbourhoods, and open network team areas. In terms of average square feet per employee, the norm in the 1980s was 200 to 300, according to Moody's Analytics, but by 2019, that average had fallen to 126.5.

However, with the social distancing measures in place for the foreseeable future, and the abovementioned role of remote working going forward, space capacity and functionality will change, meaning that traditional high-density configurations of rows of desks will have to be reconsidered. With offices expected to cater more towards collaborative and social functions, there will need to be a shift towards smarter spaces that are conducive to interaction and conversation.

HVAC

The role of adequate ventilation and indoor air quality in office spaces is obviously important, but it should be noted that not all heating, ventilation and air conditioning (HVAC) systems are up to the task for current requirements. Now more than ever, it is vital that systems are reviewed with fresh air intake in mind and relative humidity, and potential improvements, such as filter upgrades, pre-filtration options and purification solutions, considered. The opportunity for smart technology to optimise the systems should also be explored, in terms of monitoring CO2 levels as a fundamental air quality indicator (and of the performance of the ventilation system), and controlling the operation of the system.

A strong focus on well-being

In recent years, there has been increased focus on the role of health and well-being in the workplace. Given that the average American spends 93% of their life indoors, according to the Environmental Protection Agency (EPA), it makes sense that now more than ever, organisations want to explore how they can optimise their workplace from a health and wellness perspective.

While certifications such as the Well Building Standard and Fitwel have been more and more popular in recent years, both have developed new standards in response to COVID. WELL has introduced the Health-Safety rating, which builds upon the existing pillars within the Standard, focusing on five key themes: cleaning and sanitisation; emergency preparedness, which incorporates business continuity planning, building re-entry, and supporting resilience during emergencies; health-related services for occupiers; air and water quality management; and stakeholder engagement and communications. It is not confined to a particular type of facility and is customisable across 38 different criteria.

Meanwhile, Fitwel has launched a Viral Response Module as of the end of August, as an addition to its standard building certification. It provides annual, third-party certification of policies and practices, informed by the latest public health research on mitigating the spread of contagious diseases and incorporates turnkey policies that can be adapted to specific requirements. There are five chapters involved: leveraging buildings to migrate viral transmission; building trust in the workplace; addressing mental health within residential settings; optimising density for people; and addressing health disparities in the built environment.

While developers and tenants are reviewing their space requirements and looking to adapt their office space for flexible and remote working, the reality is that the need for connectivity and collaboration will ensure that the office market remains somewhat resilient during these uncertain times.

GLOBAL INSIGHT

Managing bioreactor lead times for success in biologics

Because of their long lead times, bioreactors can greatly influence a biotech project's critical path and affect the overall project timeline. Linesight has conducted in-depth market research to better understand the current conditions, drivers and future trends of the bioreactor industry.

Jeff Peragallo,
Director and Vice President of Operations

Nigel Barnes,
Director of Life Sciences

Ronak Shah,
Scheduling and Project Controls Graduate

With the global healthcare spend continuing to increase dramatically and projected to reach in excess of US$10 trillion by 2022, pharmaceutical companies are making significant investments in the research, development, and manufacturing of biologics, which are drugs that are derived in living organisms. Biologics projects consist of many elements, including the overall design, construction, and start-up of the entire facility, but one of the most important pieces of equipment involved in the manufacturing process is the bioreactor. Because of their long lead times, these reactors can greatly influence a biotech project's critical path and affect the overall project timeline. By focusing early on a bioreactor's design and development, clients can control one key aspect in ensuring the successful and timely delivery of biologics projects.

Key considerations

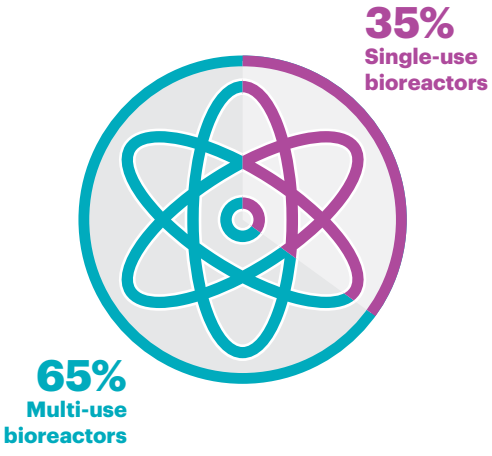
- Preparing for a project's success begins with understanding critical equipment lead times
- Bioreactors are major components in biologics facilities
- Developed by rigorously distilling project and market data, Linesight's diagnostic reveals vital insight into the impact of bioreactor lead times on the overall project timeline.

Investments in biologics are driven in large part by the global increase in life expectancy, improved access to medicines and the growth of non-communicable diseases, most prominently cancer, heart disease and diabetes. Spending on new cancer drugs alone is expected to grow by more than 50% over the next few years, with particular focus on the production of biologics. These biologics have revolutionised the treatment of many cancers and chronic conditions, such as multiple sclerosis, arthritis and rheumatoid arthritis, Crohn's disease and other autoimmune diseases.

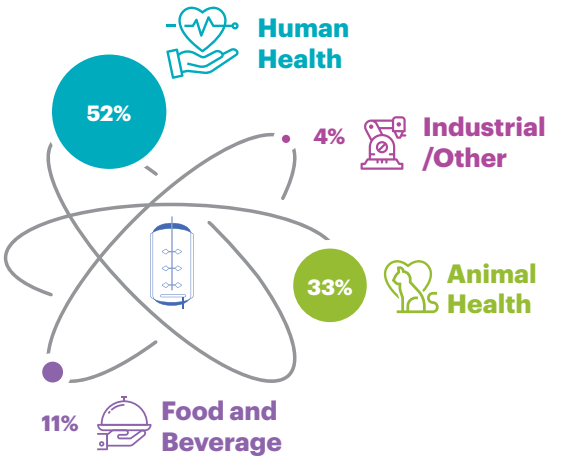
Additionally, established life science companies are upgrading their existing facilities to keep track with the latest regulations and technology. Start-ups are also joining the fray, as funding has become available based on the anticipated high return-on-investments. Thus, biologics manufacturing is expected to skyrocket over the coming years.

The manufacturing of biologics relies heavily on the use of bioreactors. A bioreactor is simply a vessel in which a chemical process, usually involving organisms or biochemically active substances derived from such organisms, is carried out. There are two types of reactors: multi-use and single-use.

TYPES OF BIOREACTORS BEING BOUGHT



WHO IS BUYING?



A single-use bioreactor, or disposable bioreactor, is a bioreactor that is lined with a disposable bag. A multi-use reactor is a vessel made typically of stainless steel or glass. With the full-on press of the pharma industry into biotech, the bioreactor market is red hot.

As such, with any significant investment, understanding the critical equipment and the lead times help our clients to better plan and prepare their projects for success. Our clients depend on us, as the market intelligence leader, to bring this insight to their projects.

To this end, Linesight created a diagnostic that was based on real-time data that was gathered through a survey administered to a cross-section of bioreactor manufacturers located across the globe. The respondents were business owners, operations managers, and sales managers with current project experience. The objective of the survey was to understand the current conditions, drivers, and future trends of the bioreactor industry.

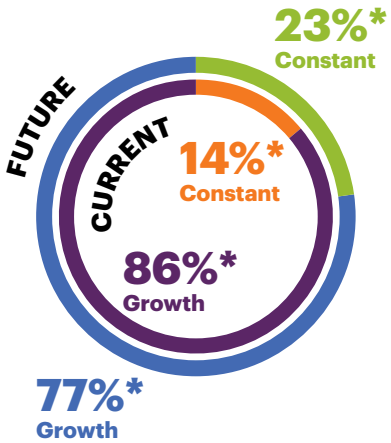
Insights and market forecast

Historically, the US and Europe have been the major consumers of bioreactors and continue to be in a strong position with robust demand. The US biologics market could, however, face possible threats to its vitality, depending on the US Presidential election and any incoming changes to policies regarding healthcare and drug pricing. The market in Asia, on the other hand, is having a major effect on the purchasing of bioreactors and is expected to see growth, with many of the bioreactor suppliers moving to the region to meet the demand. 80% of the reactor suppliers see the market increasing in activity, thus adding more pressure to lead times. The factors that are driving biologics are not expected to change if a global recession were to occur.

Conclusion

With their long lead times, bioreactors are driving the critical path of biotech projects. Though lead times are primarily influenced by reactor size and the manufacturers' supply chain, there are specific actions that clients can take to help minimise

MARKET CONDITIONS



* % of respondents

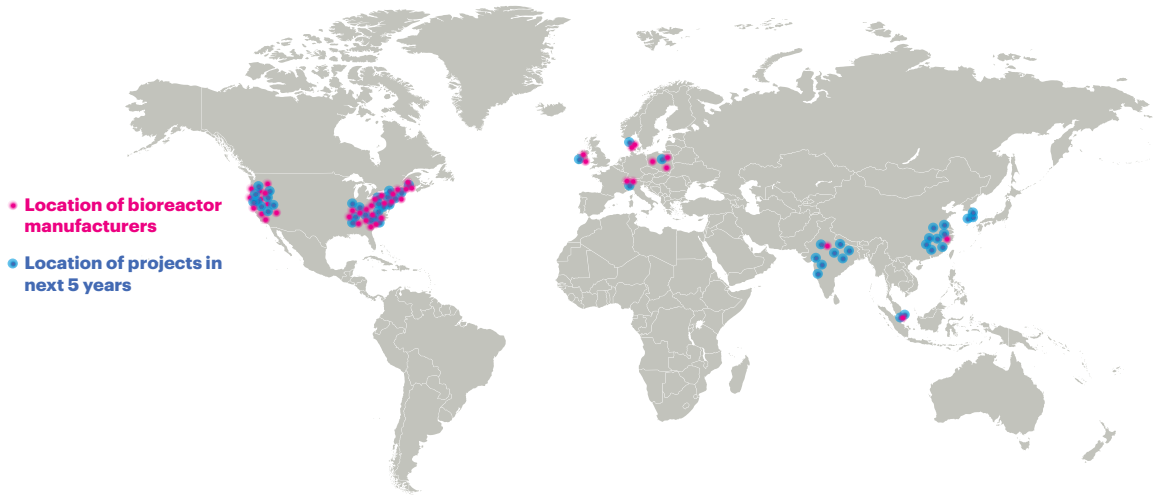
IMPACT TO MARKETPLACE IF GLOBAL RECESSION OCCURS

* % of respondents

delays by **locking in their process design early**, providing **focused show drawing reviews** and **streamlining approvals**. Linesight has seen success with clients that have a strategic focus on sourcing. These sophisticated clients have engaged Linesight to bring industry and marketplace expertise to help implement and execute sourcing strategies that are aimed to deliver value across their programme of work. These clients have successfully leveraged their buying power and have strategically aligned with some of these reactor manufacturers to improve costs and lead times. The work does not stop at the sourcing stage; order management is equally important, where focus must be on maintaining regular contact with the manufacturer and visiting the fabrication facilities to ensure processes are on track. Understanding bioreactor lead times and working with construction consultancies that have experience in reducing delays on this critical equipment are proactive steps to ensuring overall success on biotech projects.

Please note that this study was conducted pre-COVID, so bear in mind that supply chains are disrupted and as a result, lead times may vary at this juncture.

WHERE THEY ARE VS WHERE THEY ARE NEEDED



GLOBAL INSIGHT

Keeping it Lean and bringing contractors along for the journey

Lean concepts have been applied with much success in many industries and service provider organisations around the world. But how can it positively impact the built environment and why has its adoption amongst contractors been relatively slow to date?

Jeff Peragallo,
Director and Vice President
of Operations

Pat Unger,
Associate Director

The landscape for the construction industry has changed immeasurably in the face of the current global pandemic, similar to almost all other industries. It would seem now more than ever, that Lean principles would be beneficial to help the industry navigate into the post-COVID world. Furthermore, with the ever-growing demands and complexities associated with the built environment, and the well-publicised productivity challenge within construction (more than 70% of all construction projects are completed late and over budget), it is evident that the industry requires some level of disruption to enable it to keep apace of the progress other industries are making in terms of efficiency. So, why is Lean Construction still not fully embraced by contractors, and what do you as an end-user need to be aware of that can lead to this reticence to adopt?

What is value, and how is it driven by Lean?

Value is defined as what the customer perceives as important and is willing to pay for. It comprises anything that moves the project closer to completion and that cannot be reworked. True value is the 'why' behind a project being undertaken and the desired outcome or objectives, and this typically extends beyond budgets and schedules. Lean focuses on the prioritisation of the operational needs and values of the users, while delivering on budget and schedule, promoting innovation that optimises value and eliminates waste.

Eliminating waste and inefficiency

Construction industry studies have shown that in excess of 50% of the effort required to deliver a project is typically non-value-added effort, or waste from the perspective of the client. By focusing on non-value-added activities, processes are constantly reviewed for any waste or inefficiency, and what the client-led value objectives are, to achieve true alignment. Ultimately, it leads to productivity gains, optimal ways of working and the optimisation of project outcomes.

Nurturing a collaborative culture

Traditionally, construction is a combative industry – teams work in silos, the built environment is increasingly challenging, and as referenced above, productivity is stagnant. A combative culture will derail Lean, and will often have tangible impacts on a project, both in terms of cost and schedule. The Lean concept turns this on its head, championing collaboration, trust and open communication between all members of the project team, streamlining the efficiency of the project team and giving the highest chance of collective project success.

Streamlining the workflow and project delivery

Not only does Lean remove waste and inefficiency, while facilitating early engagement, consistent collaboration and constant communication, but these factors intuitively streamline the workflow. Furthermore, the use of methodologies, such as modular and prefabrication, support fast-tracked delivery, as well as optimising the capital spend.

Why are contractors slow to adopt Lean?

Contractors play a key role in the adoption of Lean, as they are responsible for the key facets of a project, including cost, schedule, safety and quality. And yet for the most part, general contractors have been somewhat slow to embrace it. Why is this the case?

A fundamental, organisational change

Lean is a significant change for any business, and can be perceived as a somewhat abstract methodology for those from a traditional construction background. It essentially changes the contractor's organisational approach at its core, and so it must be fully bought into and believed to be achievable to facilitate such a fundamental change.

Tight profit margins versus perceived cost

Construction contractors typically operate on a relatively tight net profit margin before tax, sitting around the 3% of revenue mark. Inevitably, the perceived costs associated with the necessary training and implementation of Lean will be a particularly important factor in this case, and may play a hand in its slow adoption as a result. Any potential adopter will need a good understanding of what level

of productivity loss they should expect during the learning and implementation phase.

An elemental approach

Lean's main allure for the construction industry comes in the use of elemental and relatively inexpensive tools, which again taps into its inherent value. Breaking activities and tools down will be cost-efficient but effective. A platform like Last Planner is an example of one of these tools.

What is the value to the contractor?

Similar to the client, Lean offers a distinct value proposition to the contractor, and again, the value relates to productivity. In an industry in which productivity is poor and wages account for a substantial proportion of total revenue, a marginal increase in productivity arising from a methodology such as Lean will have a significant impact on profit. For example, a 10% uplift in productivity in a business, with 3% average profit where wages amount to 35% of total revenue, will double the profit.

Furthermore, achieving improved productivity helps to mitigate against risk in a business that is inherently risky and competitive, and so it is hard to understand why the adoption rate is still remarkably low. However, the general consensus is that these distinct benefits have been lost in translation along the way, and that hard facts and statistics are needed to address this in terms of which contractors will be receptive.

What Lean techniques and practices are particularly relevant in a post-COVID world?

While the benefits that off-site methodologies can offer is relatively well-known, the potential for OSM to counteract some of the productivity challenges arising from COVID

measures (for example, reduced capacity on-site due to social distancing) is significant. Another system worth referencing in this regard is Last Planner, with its capabilities to produce a predictable and efficient work flow all the more pertinent with the current challenges being faced in the industry.

Conclusion

While we see Lean being readily adopted in some sectors, it is typically more widely accepted in manufacturing and industrial-type verticals. This is because the Lean concept is ingrained in their background, and as a result, it is second nature. For contractors, Lean can represent a daunting and costly investment, but it is evident that the derived benefits of adoption are worthwhile. There are many examples of contractors embracing the methodology to its full effect, and perhaps part of the solution lies in learning from peers and allies, exploring case studies of what has worked well in the adoption approach.

While overall, challenges to its widespread adoption remain, the benefits of Lean to projects and the construction industry as a whole are clear. It promotes the elimination of waste and inefficiency, nurtures a collaborative culture and streamlines the workflow and project delivery. In bringing the concept to the forefront, Lean becomes a client-led objective, with a clear statement of the intention to embrace the Lean approach to all members of the project team at an early stage. It must be implemented through a systematic, process-driven and program-based approach. Ultimately, there's a great deal to gain by innovating project delivery. The Lean methodology has a lot to offer, which begs the all-important question: where are you and your organisation on the Lean journey?

GLOBAL INSIGHT

The true adoption of BIM - adding tangible project value?

Despite improved quality of information, as well as more accurate and speedier cashflow analyses being obvious advantages in the built environment, these benefits of BIM are often not realised to their full potential, due to implementation or adoption issues.

Diarmaid Connolly,
Associate Director

It is fair to say that BIM has been a topic of great interest within the construction industry over the last number of years, hailed as one of the core ways that we as an industry are embracing technological evolution, tackling inefficiencies, improving information quality and increasing design team collaboration. It is true that it offers a number of distinct advantages, and yet, as noted by John Hainsworth of Aurecon in his article, 'The promise of 'digital' won't be achieved by doing things the way we've always done things', with an array of definitions and a lack of clarity surrounding BIM, its full benefits are yet to be realised. John points to the fact that its implementation is often carried out in a file-based, transactional manner, with a truly collaborative approach absent and ways of working essentially the same as they have been traditionally – just using the technology to do the same things and missing out on the potential benefits.

At Linesight, the lack of willingness to fully adopt is something that we see on a global basis, although the extent does vary somewhat from region to region. We have adopted BIM on a global basis and invested heavily in its implementation, both in hardware and software, and in continuous staff training, to ensure that we are up to date with the latest developments and at the forefront in terms of its effective utilisation. Below is a summary of the key benefits that we see in the effectual use of BIM.

Speed and agility

The pace at which estimations can be produced increases considerably with the use of BIM, and this is one of the key advantages of its effective implementation. It enables the creation of option costs with greater speed, as well as the potential for live cost planning and modelling – introducing a level of agility with cost planning and estimating that has not traditionally been possible. Ultimately, this leads to faster decision-making and thus, a faster speed to market.

Accuracy and quality

Information accuracy and quality has been a particular challenge for the industry in recent years, with the UK's 'Get It Right' initiative finding that information errors cost the industry an estimated 5% of project value globally. In addition to the abovementioned speed and agility benefits, effective BIM implementation increases the accuracy with which cost estimating, planning and modelling can be carried out, by minimising the risk of human error, as well as supporting a higher quality of information. This in turn leads to a more cooperative project, as tenderers are much less likely to recover costs incurred due to poor or inconsistent information.

Increased productivity

While increased collaboration is often touted as a key benefit associated with BIM, this is not something that comes to fruition as often as one may think. The technology facilitates clarity, transparency and real-time sharing of information across the project team, coordinating information from various disciplines and eliminating version control issues, as well as keeping the lines of communication open. However, a proactive approach is needed across the team to actually realise these benefits, which is quite often lacking.

Cashflow

Managing and forecasting cashflow throughout a project is fundamental to its success, and traditionally, cashflow analysis is a lengthy and tedious process. From Linesight's perspective, this is one of the biggest advantages associated with BIM – its effective adoption facilitates more accurate speed forecasting by linking cost-loaded models and programmes, with more detailed models producing more accurate cashflow analyses. Ultimately, our early involvement in a project means that cashflow investment can often be deferred, which is particularly beneficial for projects with a large capital spend.

Cost intelligence

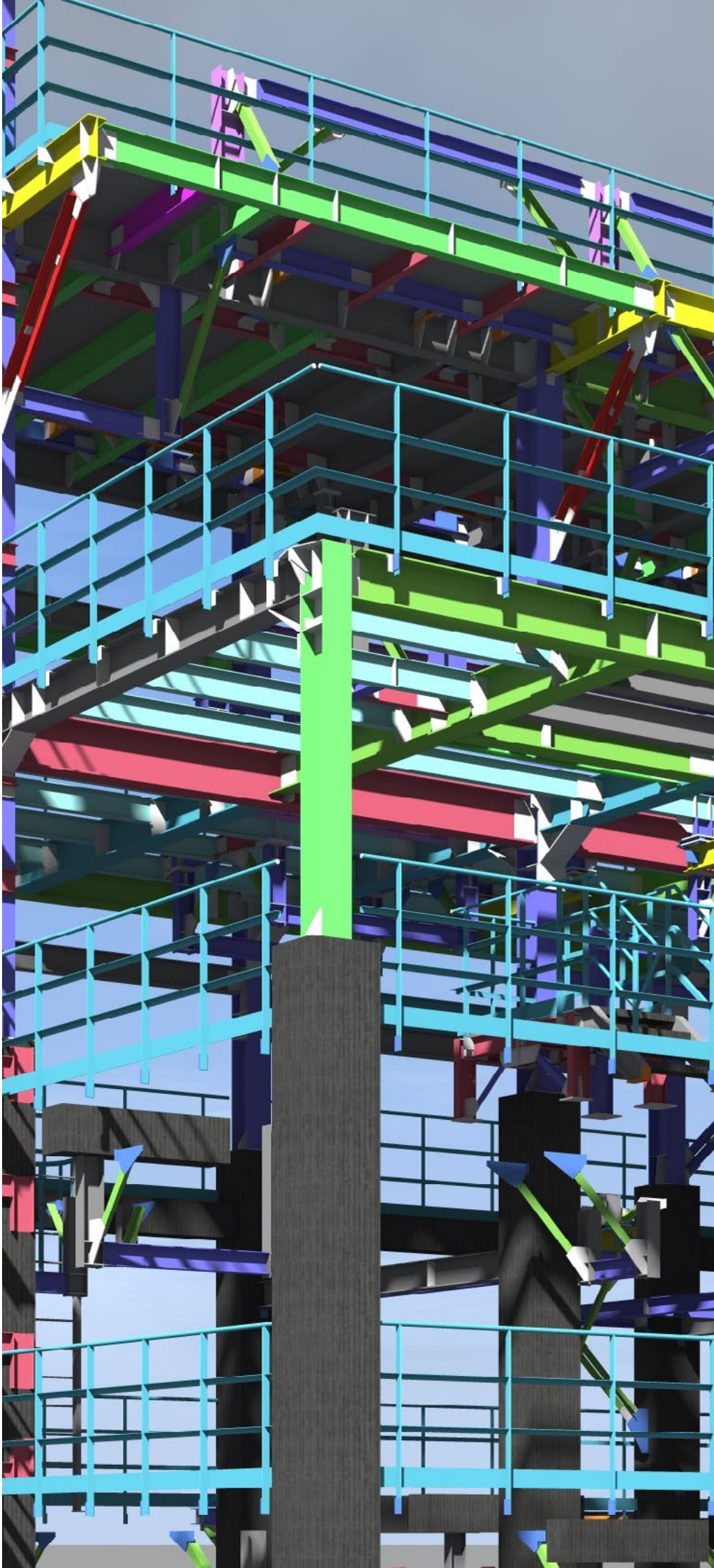
While benchmarking is not a new methodology, BIM facilitates it at a more accurate level as costs are broken down in more detail in the models, so by splitting the model, it allows us to benchmark

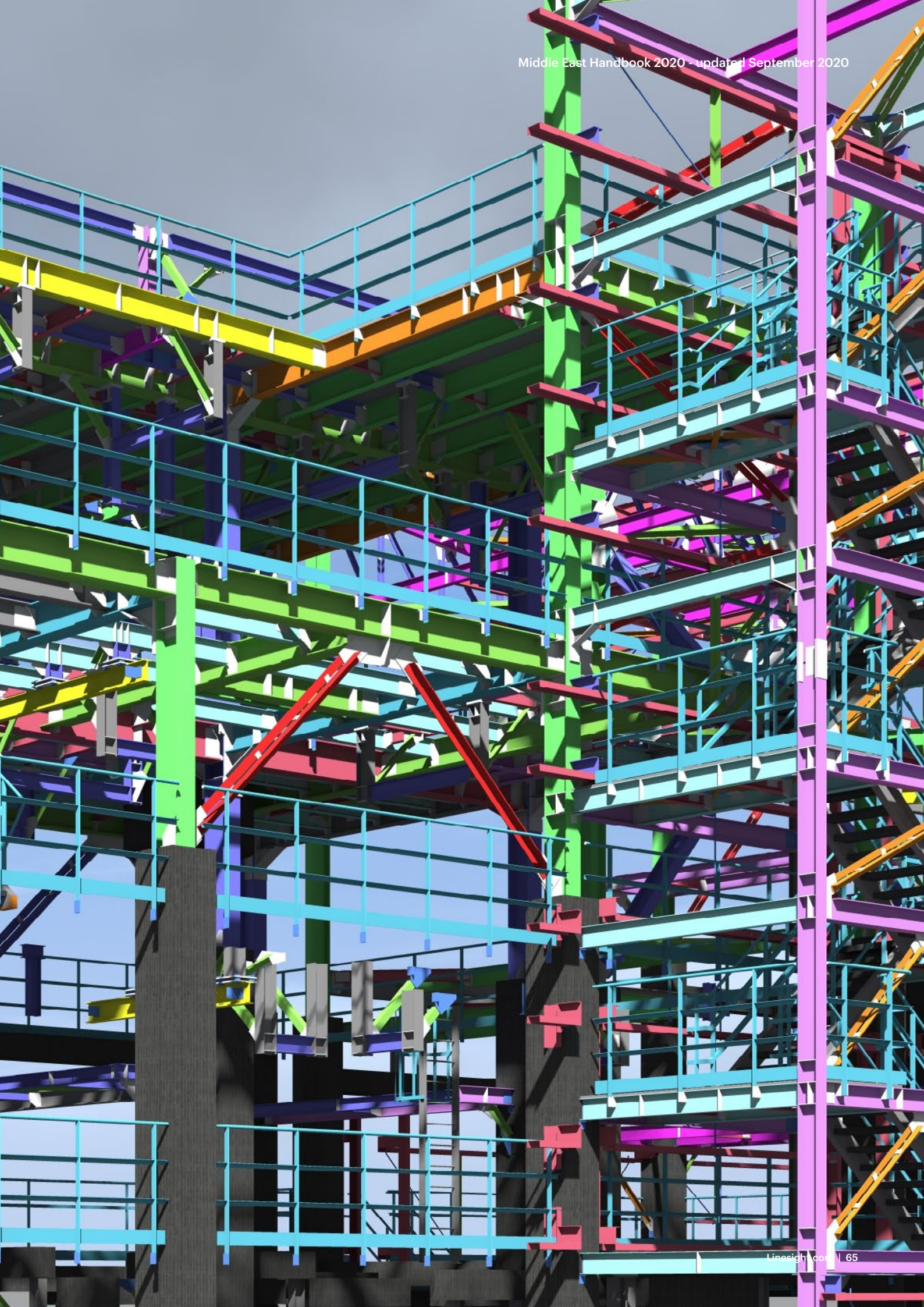
specifics. However, by using BIM to its full potential, it pushes this further, to what we refer to as cost intelligence. With a deluge of complex data associated with projects nowadays, utilising the latest data visualisation tools brings this data to life in a meaningful way – illustrating trends and concepts in a quick and easy-to-digest format, allowing project teams and clients to draw conclusions from large volumes of data and inform effective decision-making.

In summary

While the benefits of BIM are often well-covered, these are not often realised to their full potential due to implementation or adoption issues. Ultimately, the technology is there, but not the willingness to take the leap of faith to truly adopt and trust the use of BIM. At Linesight, we believe that clients and design teams should consider this sooner rather than later, as the rewards are rich. We've made the jump and seen significant benefits in the built environment for our clients – are you ready for the leap?

Information errors
cost the industry an estimated
5% of project value globally.





GLOBAL INSIGHT

The rise of the smart hotel

Intelligent buildings are not a new concept, but the level of advancement is gathering pace and the increasing adoption of smart technology is spreading across multiple sectors.

Andrew Callaghan,
Director

Des O'Broin,
Director

Hugh McElvaney,
Senior Quantity Surveyor

Intelligent buildings are not a new concept, but the level of advancement is gathering pace and the increasing adoption of smart technology is spreading across multiple sectors. While these core drivers impact every sector, the influence of technology and shifting demands is particularly significant within the hospitality sector, as it shows a marked shift towards integrating these technologies into the latest developments. This boils down to a few key factors, as discussed below.
It is important to bear in mind that while the sector is currently struggling with the impact of COVID, it will recover in the coming years as the world adjusts to the 'new normal', and smart technology will play an even more important role in its recovery and success.

The hyperconnected guest

One of the most fundamental drivers behind the trend for smarter hotels comes in the form of the rise of experience consumption, which is a key catalyst in a sector wherein consumer needs are front and centre. As noted by Alex Witkoff, Executive Vice President of Witkoff Development, at Bisnow's Hospitality Investment, Development and Management Summit in New York earlier this year, "Spending on the experience economy is expected to reach $8 trillion by 2028". The experience is becoming even more important to the guest and optimising this can make all the difference against an increasingly competitive landscape. Recent reports actually suggest that 2020 will be the year that customer experience overtakes price and product as the key brand differentiator.

There is a plethora of ways in which intelligent technologies can be leveraged in order to optimise the guest experience, but the crucial aspect is its ability to tailor and personalise their stay. Indeed, 86% of consumers say personalisation plays a role in their purchase decisions, according to recent Kahuna survey, and brands that incorporate personalisation by integrating data and advanced technologies report revenue increases of 6-10% (Qubit). Ultimately, Millennials or Generation Y form a very significant proportion of the target market, influencing the design of new hotels, from incorporating new technologies to the inclusion of co-working areas.

Customer expectations are evolving in line with their adoption of technology in their day-to-day lives. Guests are using technologies, from streaming services and smart assistants to remote climate control in their homes, so the expectation that hotels will have the infrastructure to support and match these technologies is taking hold. They expect the ability to tailor their experience to some extent, and to have the autonomy to control their space and hotel experience, including:

- Climate and temperature control
- Temperature for showers
- Curtain/drapes/blinds
- Entertainment systems
- Hands-free, voice-control
- smart assistants
- SmartBed™ technology
- Smart self-check-in/check-out kiosks

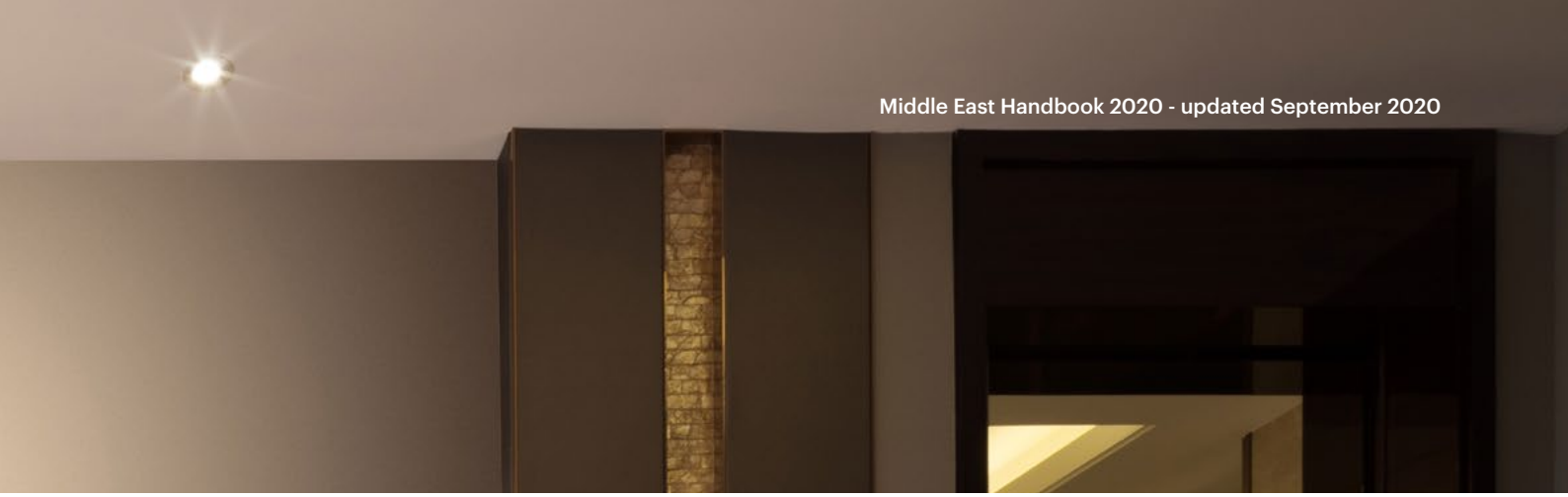
Needless to say, it is now the norm to interact with multiple devices at any given time.

Furthermore, hotels are now in a position to collect and analyse insightful data, and to anticipate, manage and understand guest preferences, in order to enhance the guest experience.
Data-driven insights will help to personalise the experience and guide service provision.

Guiding operational efficiency

The second key driver lies in operational efficiency. Integrating smart technologies, from the simple occupancy detection systems to the more complex smart phones operating the lights and electricity within a room, keyless access and mobile check-in — these measures are proving to offer tangible benefits to the running costs of a hotel.
We are moving towards the concept of a truly connected hotel, by leveraging Internet of Things (IoT) technology to ensure systems work together and communicate to deliver efficiencies in all areas. This extends from robot butlers delivering your room service to digital door signage functionality, to allow housekeeping staff to


32°
Sunny
1 Feb
Wednesday
25.3°



remotely see the rooms to be cleaned and devise an efficient workplan around that live data.

Smarter hotels in practice

Yotel, Citizen M, Best Western and Wynn Resorts are just some of the names adopting and promoting these new technologies. Marriott International is often perceived to be leading the charge in this regard across its 30 brands in 126 countries, from integrating keyless access on a widespread basis, to continuing to work on its connectivity and adoption of smart technologies via its IoT Guestroom Lab within its Innovation Lab. An example of how it is implementing this technology in practical terms lies in the Aloft Hotel chain, which sits under the Marriott umbrella. Linesight was a part of the team that delivered its Dublin City branch last year, with some interesting and forward-thinking technologies delivered as part of the project:

- Mobile check-in
- Keyless access via an app
- Wireless printing facility in reception
- Large video walls to reception and bar area
- USB charging sockets
- Integrated international adaptors in guestrooms
- A fully-integrated VRF AC system, controlling the room temperature and power supply to the room
- An integrated door sensor for room access. Once the room is activated by the guest's smartphone, the power is automatically supplied to the guestroom and the VRF system comes online and goes offline automatically when the room is unoccupied for any length of time
- An automated minibar system - once an item is removed, if it is not returned within a certain time period (can be set by the operator), a charge will be applied to the room for that item
- 43" smart TVs in all bedrooms with a casting system for the whole hotel, to allow guests to watch content from their own devices
- A room service robot named 'Lofty' or 'Botlr'. Once an order is made and placed, the robot travels to the lift, which it calls wirelessly on its way to the room. Once it arrives, the room phone will ring and inform the guest that the order has arrived

Costs

There are reasonably significant costs associated with upfront investment in these technologies and systems, including high-speed WiFi everywhere and boosters for the latest 5G mobile coverage, but the pace of demand for smart hotels and the latest technology is on the increase.

In summary, the hyperconnected guest, and their needs, evolving habits and expectations are driving the shift towards smart hotels. In their 'home away from home', they expect an integrated experience that aligns with the technology that they have become accustomed to in their day-to-day lives. Hotels should leverage the data that they can now readily collect to glean meaningful guest insights, and to anticipate and better manage guest preferences. Room presets based on loyalty scheme guest accounts can have the room set-up for guest preferences, including temperature, lighting and even minibar contents.

From an operational perspective, there are a multitude of benefits that arise from integrating smart technologies, from streamlining running costs and optimising operational efficiency, to reducing power consumption, and playing its part in making the hotel a more sustainable facility.

What we do

Our services are tailored for your project, delivering maximum efficiency from inception to completion. We specialise in key areas, to provide faster project delivery, greater cost efficiency and maximum value.

Project Management
Delivering project success through strategic planning and stringent controls.

Cost Management
Driving better value for money at every stage of the construction process.

Program Management
Managing a network of projects simultaneously in order to deliver program success.

Project Controls
Controlling every aspect of a project to deliver maximum performance and long-term success.

Procurement
Adopting the most appropriate strategy to suit both public and private sectors.

Supply Chain Management
Providing efficient logistic strategies to streamline the delivery of equipment and services.

Health and Safety
Securing compliance, and providing design teams and clients with expert advice and independent review.

Consultancy
Providing professional, hands-on advice and guidance throughout every stage of your project.

Planning and Scheduling
Providing an initial project overview, developing a detailed structure and identifying schedule controls.

Monitoring and Due Diligence
Independent examination of project information, identification of risks and compliance issues, cost verification checks and ongoing monitoring of project milestones.

Our values

Over the years, we have developed a way of working that ensures quality and consistency in how we operate. Our five core values inform what we do and how we do it:

Partnership

We are focused on our clients' goals and work closely with them to achieve the best possible results. We believe in collaboration. When we share our experiences and combine our expertise, we can achieve great things.

Progress

We believe in always moving things forward and finding better ways of working. We're not just focused on what we do but also on what we can achieve. We are driven by success – for our clients, our partners and each other.

Integrity

We are fair, open and ethical in everything we do. We challenge things we believe to be wrong and are open to being challenged by others. We take pride in the quality, accuracy and independence of our work.

Resourcefulness

We work around the world, in diverse sectors and for clients with distinct ambitions. This requires us to act effectively and creatively in new and complicated situations. We rely on our individual and collective abilities to resolve any challenges we may face.

Long-term view

We believe in working sustainably, and so we build enduring relationships with our clients and partners. We work together in a way that is respectful and considerate of each other and the wider society in which we live.

Our culture

Our **bold ambition, honesty** and **confidence to deliver,** together with our commitment to cultivating **meaningful relationships** is what sets us apart.

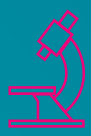
Our distinctive culture has always played a key role in our success. As a business we want to be intentional in maintaining and working within the principles of our distinctive culture.

Own and empower

We have a highly developed sense of responsibility for identifying problems, finding solutions and executing with excellence. As individuals and teams, we are free (and encouraged) to exercise our judgement to reach our goals.

Connect for good

We are team players, collaborating globally and locally to deliver exceptional results. We encourage and nurture relational rather than transactional business relationships, continuously building a totally inclusive working environment.



Embrace clarity

Our emphasis is on direct communication - our preference is always face-to-face, or to pick up the phone. We express ourselves clearly, honestly and effectively in our communication. We are pro-active in inviting and providing actionable feedback.

Lead by example

We believe in mentoring as a way to strengthen and develop ourselves and provide the resources, environment and flexibility required. We practice 'reverse mentoring' between junior and senior employees - every single person in Linesight has something to teach.

Bold ambition

We continuously develop our global team, with a shared drive and ambition to deliver exceptional results. We believe success is winning unreserved recommendations for exceptional work and impact. We always work with an eye on the future, whilst delivering on our commitments and objectives.

Working with you, wherever you are

With staff located across Europe, MENA, Asia Pacific and the USA, our reach is truly global. We are delivering projects in over 40 countries and are always exploring new areas of opportunity. We offer first-class consultancy on major projects across 13 specialist sectors, and we have developed a broad portfolio of innovative projects in every region.

- Commercial Development
- Commercial Fit-Out
- Data Centres
- Education
- Food and Beverage
- Healthcare
- High-Tech Industrial
- Hospitality
- Life Sciences
- Residential
- Retail
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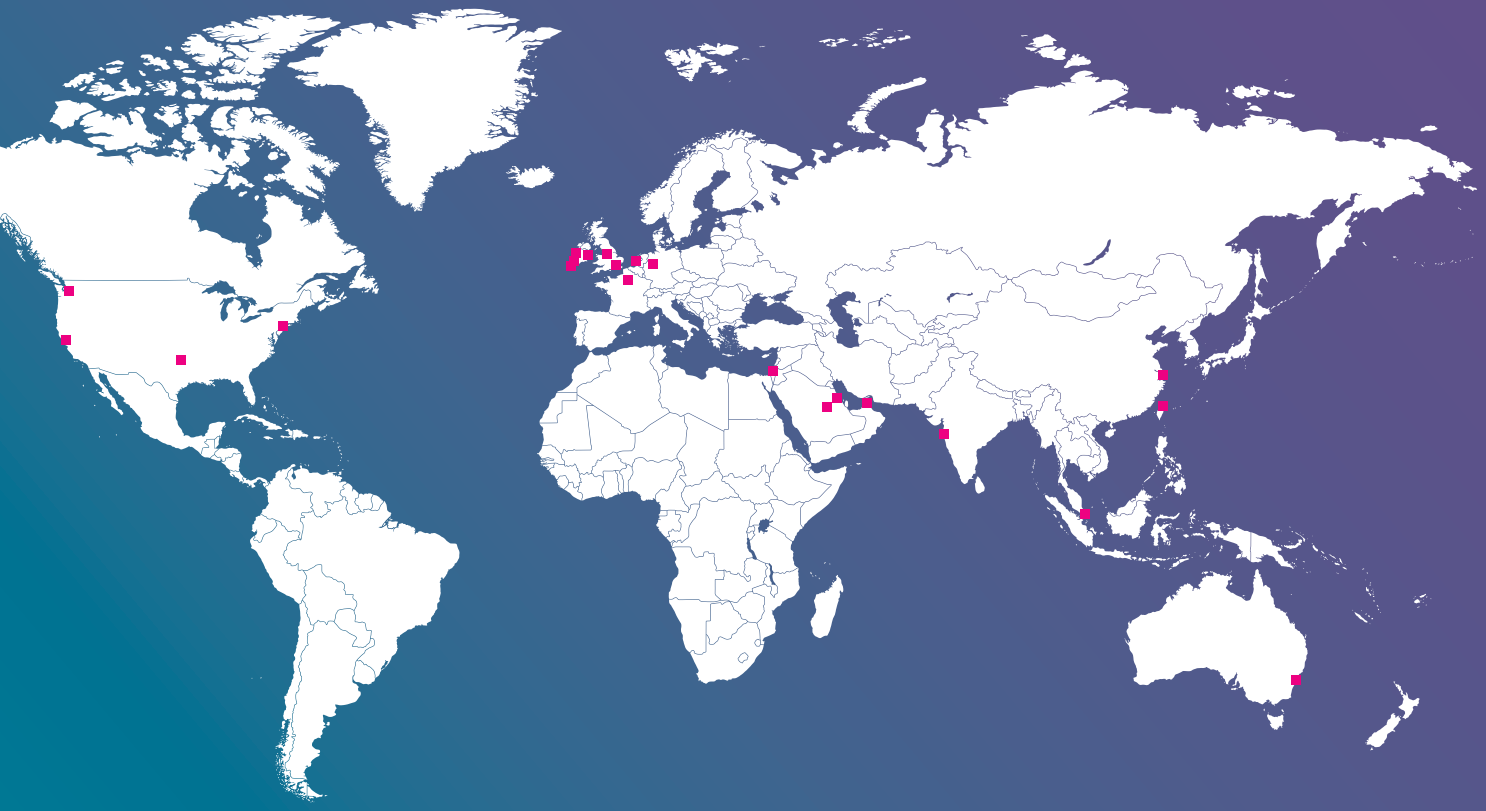
Our offices

Middle East

Bahrain
Building No 655
Road 3614
Al Seef Area
T: +973 17 746 892

Dubai
24th Floor - Office 2403
1 Lake Plaza Tower
PO Box 11497 Dubai
T: +971 4 432 3831

Riyadh
Office 503 5th Floor
Al Akariyah 1
Olaya Street
Riyadh 14023
T: +971 55 615 6846



Europe

Dublin
Hoban House
Haddington Road
Dublin 4
T: +353 1 661 4711

Cork
VHI House
70 South Mall
Cork
T: +353 21 4274 474

Limerick
Linesight House
6 Hartstonge Street
Limerick
T: +353 61 493 515

Galway
TaraRock 7,
Galway Technology
Park, Parkmore,
Galway
T: +353 91 734 005

London
2nd Floor
27-29 Cursitor Street
London EC4A 1LT
T: +44 20 7784 7330

Manchester
Peter House
Oxford Street
Manchester M1 5AN
T: +44 161 618 1811

Paris
Linesight SAS,
23 Rue d'Anjou,
75008 Paris,
France.
T: +33 1 70 92 37 91

Dusseldorf
4th Floor
Konigsallee 92A
40212 Dusseldorf
T: +49 211 5403 9615

Tel Aviv
Ramat Gan Atrium
18 Jabotinsky 2nd
Floor
5250501
T: +972 3 754 1289

The Hague
11th Floor
Koningin Julianaplein
10
2595 AA The Hague
T: +317 08 918 467

MENA

Mumbai
Unit No 902
Maithili Signet
Sector 30A Vashi
Navi Mumbai 400705
T: +91 22 49766744

Asia Pacific

Singapore
150 Cecil Street
#05-01
Singapore 069543
T: +65 6801 4540

Shanghai
Unit 819 8F Building 2
No 1196 Century Avenue
Shanghai 200120 PRC
T: +86 21 6043 3695

Taipei
10F-2 No 162 Sec 4
Zhongxiao E Rd Da'an Dist
Taipei City
106 Taiwan (ROC)
T: +886 906 179382

Sydney
Level 5
131 Macquarie Street
Sydney NSW 2000
T: +61 2 8278 9500

The Americas

New York
286 Madison Avenue
Suite 602
NY 10017
T: +1 646 802 9900

San Francisco
582 Market Street
Hobart Building
San Francisco CA 94104
T: +1 415 343 2434

Seattle
2018, 156th Ave NE
Suite 310, Bellevue
WA 98007
T: +1 425 748 5147

Dallas
350 North Ervay
Street
Suite 3105
Dallas
TX 75201
T: +1 469 513 4113

Acknowledgements

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Editorial team:

Derry Scully, Alan Dunphy, Ciaran McCormack, Claire O'Broin, Hazel O'Donnell, John Chavez, Kevin Gardiner and Vinod Jain.

Contributors:

- Andrew Callaghan
- Des O'Broin
- Diarmaid Connolly
- Eoin Byrne
- Gavin Flynn
- Hugh McElvaney
- James Askew
- Jeff Peragallo
- Kim Hegarty
- Nigel Barnes
- Oliver Keegan
- Pat Unger
- Varadarajan HR
- Vincetan Basil Sooriyaarachchi