



Together we build to transform societies

# PwC Middle East 2022 Capital Projects & Infrastructure Survey

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# Foreword

For over a decade, the PwC Capital Projects and Infrastructure Survey has provided a vital 'pulse check' on investment and execution of capital projects across the Middle East.

The Survey brings together data as well as analysis from across the sector, with perspectives from project sponsors, developers, functional and technical experts, contractors, financiers and asset managers, in order to understand sector opportunities, challenges and underlying sentiment from those closest to it.

The sentiment from many sector stakeholders is clear: they recognise the need for change, and they are ready to make it happen.

As every construction professional knows, the time to repair the roof is when the sun is shining. And the sun is shining right now: thanks to historically high Middle East government revenues from oil and unprecedented levels of investment confidence among policymakers, there has never been a time like the present for the construction sector. The project pipeline is huge, and the projects themselves are more ambitious and more transformative than ever before.

Yet, the question remains, does the sector have what it takes to deliver complex projects that demand new technologies, sources of financing and new skills, now and in the future?

Judging by our 2022 Survey, that remains an open question. On this we are guided by regional companies themselves - the sector as a whole recognises the need for new skills, for better planning and forecasting, for new sources of funding, and of course for new technologies.

Our message in this survey report is that all those changes are achievable. But they will require a level of collaboration in the region and internationally that is new, and for all organisations in the sector, that is going to prove the real challenge.



**Maarten Wolfs**

Middle East Capital Projects & Infrastructure Leader

# Executive summary

In 2021, the capital projects and infrastructure sector in the Middle East region saw activity rebound to near pre-pandemic levels. Our 2022 survey captures the mood of optimism with over 70% of project owners, sponsors, developers or investors surveyed indicating that they expect to increase their investment in capital assets over the next two years. This sentiment is also mirrored within the supply chain, with more than 85% of those surveyed expecting a corresponding increase in the forward order book. These included main contractors, subcontractors, technical and innovation consultants, legal advisers, project management consultants, asset managers and operations providers.

However, it was also clear from our survey that in order to exploit the growth potential within the sector and achieve greater efficiencies, those operating within it must modernise by embracing digitisation, localisation, privatisation and decarbonisation.

## Key findings

### 71%

**expected to increase their investment over the next two years.** Delivering this ambition will require increased collaboration between project sponsors and the supply chain to secure funding, develop talent and modernise industry practices.

### 55%

**expected the proportion of their portfolio funded by private finance to increase,** where it will act as a catalyst for skills development and an increased focus on sustainability.

### 11%

**Only 11% of respondents considered environmental and/or societal impact to be key metrics** for determining project success despite the regional growth ambitions intensifying the challenges of decarbonization.

### 15%

**identified ESG (Environmental, Social & Governance) as their priority investment area** and 23% identified environmental/sustainability as the functional skills in greatest demand, indicating a shift in mindset and priority of these issues within our sector.

### 58%

**plan to increase internal investment over the next 12 months** in order to modernise their business and positively exploit the market growth opportunity.

### People (69%) and technology (55%)

related initiatives are the top investment priorities placing a sharp focus on skills agenda for the sector.

### Drones, digital monitoring and prefabrication

are key technologies expected to increase productivity.

For many organisations surveyed, the change agenda is complex and ambitious. **Collaboration**, both regionally and internationally, will be **key to success**.



# Introduction

## How to meet the demands of growth?

The biennial PwC Capital Projects and Infrastructure Survey brings together data, analysis and sentiment from right across the Middle East. We have gathered perspectives from developers, financiers and industry experts, all drawing on past experience and current project work in transport, urban development, real estate and utilities, civil works, Giga-projects and Mega-events. It is the most comprehensive survey of its kind.

The message from this unique dataset is clear: growth has returned, and so have the challenges of growth. **Our previous survey** in 2020 marked the crisis brought about by the COVID-19 pandemic and the sudden pullback of public funding that accompanied it. According to Mordor Intelligence and Strategy& analysis, the value of projects planned and under execution in the GCC region had remained relatively stable at around the \$1.7 trillion mark since 2017; dipping sharply in 2020, before rebounding in 2021.

Saudi Arabia, the region's largest economy in 2021, has ramped up tendering on its Public Investment Fund Giga-projects programme, particularly the NEOM, Red Sea, Diriyah Gate, AIUla and Qiddiya developments. Since June 2021, more than a dozen major contract packages have been released on NEOM alone as the estimated \$500bn plus development of the futuristic, zero-emissions city enters full-scale construction.

Yet, for all this growth, the challenges of modernisation in a sector that has lagged behind others in terms of skills, technology and decarbonisation – as we highlighted two years ago – have not gone away. If anything, this growth phase has intensified the challenges. The capital projects and infrastructure industry is now being tasked with the kind of complex and technologically advanced developments that cannot be delivered by outdated methods.

## Confidence is rising – but so are the challenges

**Can the construction sector match the kind of modernisation that other industries in the region are embracing? The question is open – but the time for change is now.**

Companies report that current order books are performing well, that they are satisfied with progress on the majority of projects, and that expectations of future growth are upbeat. On the face of it, the construction sector seems to be having the best of times, with more of the same to come.

Yet, when we dig below these headline responses, we find a slightly different story. Companies are also acutely aware of challenges that call into question the structure and capacity of the sector. They are concerned about skills, about recruitment and retention, about technology take-up and deployment, and about their ability to attract international investment and to accomplish the kind of international collaboration that complex and large-scale projects demand.

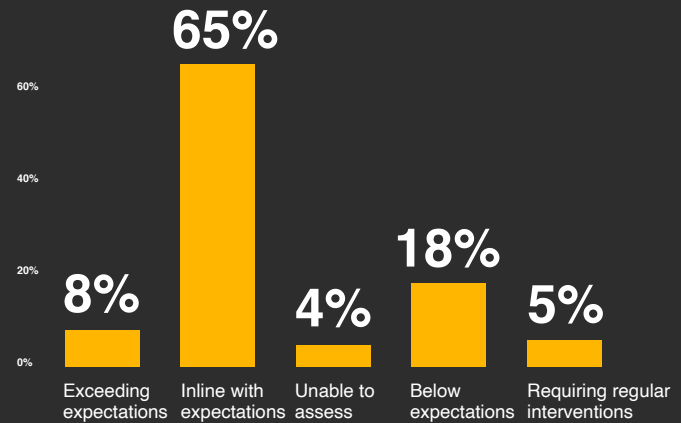
These are long-term issues, and they are essentially issues of modernisation. Can the construction sector match the kind of modernisation that other industries in the region are embracing? The question is open – but the time for change is now.



# Situation analysis

## Demand and delivery are strong

When asked to describe the current 'health' of their major engineering, construction or equipment manufacturing projects, nearly two-thirds (65%) of respondents said it was in accordance with their expectations, with a further 8% stating that project health exceeded their expectations. That means the majority (73%) of our respondents report that their project portfolio was either meeting or exceeding expectations. Companies also report that 70% of their projects achieved their performance targets (with the majority – 64% – using end-user satisfaction as the metric used to assess performance).



These results are markedly better than those of two years ago. In 2020, our survey reported that more than half of organisations had experienced a major delay in projects during the previous year, while 38% of organisations had seen projects run over budget in the preceding 12 months.

Yet, the proportion of companies reporting underperforming projects remains significant. Over a quarter of respondents (27%) report negative project health, with around one-fifth (18%) of our respondents rating the health of their projects as below expectations and 5% indicating that their project portfolio requires regular intervention in order to keep it on track.

**27%**  
negative project health

**18%**  
below expectations

**5%**  
requires regular intervention to keep on track

## There are **cracks** beneath the surface

If we search for the structural and longer-term factors that underlie the underperformance reported by a significant minority of companies, they are not hard to find. When organisations are asked about long-term strategic challenges, a large number report obstacles to modernisation.

For example, more than a third of respondents (43%) cited the conversion of strategy into implementation as the most significant internal obstacle affecting the 'health' of their capital investment portfolio, programme or projects. We interpret this response as a measure of the difficulties that companies are experiencing in embedding new technologies, ideas and future visions. It is no coincidence that 37% of respondents also included 'risk and change management' and 34% cited 'improving the technologies and tools available to their workforce' when asked about internal obstacles to improving the health of their portfolios.

These three challenges of strategic implementation, technology and change management are inextricably linked. They point to an industry that is trying to respond to increasing client demands, new technology and digitisation, demand for new skills and workplace practices, and fast-evolving environmental and societal obligations.

Although all these challenges are significant for regional organisations, the one that tends to show up first on the operating agenda is that of skills. The current high level of demand has created a war for talent within the sector with 31% of respondents citing the availability of skilled resources in the market as their top challenge. Although the issue of talent recruitment, retention and training runs deeper than short-term skills shortage, it is here that the industry will first feel stress as wages increase and the delivery of keynote projects is put at risk.



## Cashflow and financing are high on the agenda

Significantly, 34% of our respondents identified that the financial performance of their portfolio was one of the key internal challenges affecting their business health and growth. The capital-intensive nature of this sector makes it susceptible to global and local economic shifts specifically in relation to access to capital and access to the required supply chain. For example, more than half (55%) are experiencing challenges as a result of materials and pricing fluctuations.

However, it is in access to capital, and particularly cash flow management, that the industry continues to report a longstanding challenge. In 2022, 37% of respondents said the issue of funding and financing projects was one of the most significant internal issues impacting their business.

It is likely that there are a number of contributing factors in this area, including the rapid increase in overall project initiation placing a strain on the capital available. However, our survey shows that working capital remains the most acute area of challenge, with 47% of respondents citing delayed payments from clients as their top financing issue. This is supported by our recent **Middle East Working Capital Study** which identified the engineering and construction sector as one of the worst performers in the region with some of the longest cash-to-cash cycles. The study concludes that the sector remains marked by the perennial problems of poor budgeting and delivery challenges which lead to frequent disputes, legal claims and lengthy collection cycles.

## Capture the ambition

### Companies are ready for change

Our 2022 survey shows that companies are ready for change, hungry for modernisation, and poised to invest.

Companies that participated in our survey recognised that they need a step-change in skills and organisational capacity if they are to configure their business for the demands of this Giga-project era. The top three areas of urgency they identified were in hiring and retaining high-skill employees (48%), developing accurate cost estimates and forecasts for their projects (47%), and creating suitable governance and risk management processes (37%).

**48%** **47%** **37%**

Hiring and retaining high-skill employees

Developing accurate project cost estimates and forecasts

Creating suitable governance and risk management processes

Organisations also identify other areas of modernisation need. Survey respondents identified the need to increase supply chain capacity and performance (34%), to upgrade technology and tools (33%), as well to improve their contracts and procurement strategy (33%) and secure the required project finance (31%).

These investment priorities touch on many aspects of the organisation, including structure, strategy, policies, tools and business practices. They are systematic, interdependent and need coordinated investment, planning and change management to deliver the improvement required. They represent a comprehensive modernisation transition that could potentially make sector organisations more collaborative in response to the demands of an increasingly complex world.



# Key themes

## The shape of modernisation

It is clear from the 2022 survey results that companies recognise the most urgent modernisation themes in their strategic transformation must revolve around people, technology and the overall organisational capacity to turn strategy into action. To drive these innovations, over half of our respondents (58%) are planning to increase investment in their businesses over the next 12 months compared to last year, with over a fifth (22%) planning 'significant' investment.



**People.** Modernisation of the workforce was high on the agenda, with 58% of respondents identified better hiring and retention of project staff as a key area. When asked to identify the form this investment will take, the top response was training (38%) to both develop and retain the current workforce. Finally, 20% of respondents identified recruitment as their top priority.



**Technology.** Technology was cited by a significant proportion of respondents with 50% identifying the need to deploy new and emerging technologies and a further 48% identifying improved integration of their existing technologies. It was also recognised that technological advancement will disrupt the infrastructure market: around two thirds said that drones and digital monitoring (67%) and prefabrication (64%) would transform the sector, and over half (51%) believe 3D printing will do the same.



**Structure and processes.** For regional companies and institutions, enhancement of organisational processes includes better project planning (61%), better portfolio and investment planning (39%), improved internal processes (53%) and improved standards (47%). Approximately one third of the organisations surveyed were looking at ways to quickly scale their capability or capacity in order to respond to market changes, with 26% of respondents identifying the formation of partnerships, JVs or alliances as their top priority, and a further 10% considering acquisitions.

## Digital transformation

Technology adoption in the engineering and construction sector has not kept pace with other industries. Yet, according to our survey, things are changing. Amongst the key growth areas are the use of 'Big Data' (41%), digital twins (17%) and drones (33%). Where companies have implemented new technology solutions the benefits are already clear, with 91% of respondents citing measurable improvements including reduced human error (62%), improved employee experience (59%) and enhanced project delivery insights (59%).

Yet, the survey reveals that there remain digitisation gaps to be filled. While 55% of our respondents cited investment in technology as a priority area, it is clear that there is a need for systematic support in order to make that happen. Some of the key enablers identified by those surveyed include: increased awareness of the return on investment (50%), improved payment behaviour to support investment (43%), and government incentives to implement new technology (41%).



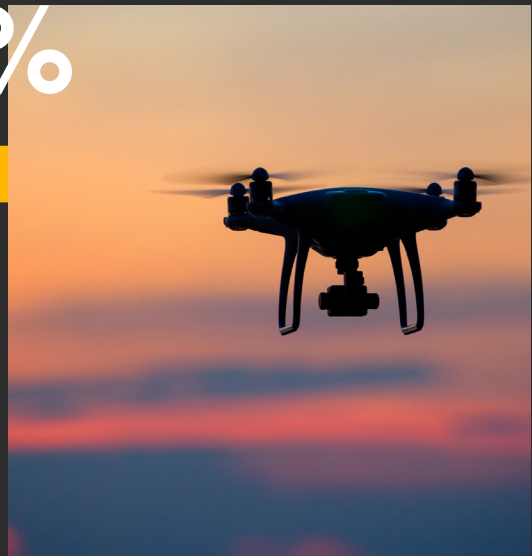
**41%**  
Big Data



**17%**  
Digital twins



**33%**  
Drones





## Building a local talent pool

Middle Eastern organisations face an increasing demand for talent with specific sector and digital skills, fuelled by the increase in capital investment, the digital transformation of the sector and the workplace, and the need to recruit and train local talent. The survey found that respondents cited access to skilled resources as the top area that will constrain growth (41%), with over a fifth expecting their future demand for talent to exceed their ability to retain and/or attract people. In response, nearly half of those surveyed (42%) said that people-related investments were their top priority, with 69% including them in their top three priority areas.



**Leadership.** Over half of our respondents (56%) said that leadership is and will continue to be the top soft skill in demand within the sector. It was identified that vision and strategic thinking are the soft skills that will be in most demand over the next two years.



**Functional skills.** Project management (59%) and cost control (50%) were the functional skills currently most in demand. Over the next two years, financing and investment qualifications will be the most sought-after skills in the region (39%, up from 27% currently). There will also be a greater demand for engineers (43%, up from 32% currently), strategy and master planners (50%, up from 45% currently) and environmental and sustainability experts (27%, up from 23% currently).

## The continued rise of private funding

In our 2020 Capital Projects and Infrastructure survey, approximately half of all respondents expected infrastructure projects to be funded by a mix of private and government sources. In 2022, we found a similar sentiment in the market, with 50% of respondents believing that access to private finance was critical to the delivery of their capital investment portfolio. However, the rationale has changed: in 2020, interest in private financing was driven by constrained government support and regulatory/legal frameworks, whereas now it is driven by the sheer scale of investment ambition in the region.

Today, 78% of respondents confirm that private financing already makes up part of their funding structure for their capital investment portfolio, and 55% say they expect the proportion of their portfolio funded by private finance to either increase or significantly increase over the next two years.

**Beyond the numbers.** Companies are seeking private funding for reasons that go beyond capital availability. 48% of respondents believe the use of private finance increases the likelihood of delivering on time, and 44% believe it increases the likelihood of delivering on budget. Respondents also see private funding as a route to improve capability: 40% of those surveyed identified private finance as a way to access private sector experience.



## The decarbonisation deficit

The 2022 survey shows that the long-recognised regional under-emphasis on decarbonisation persists. While global organisations prioritise emissions and environmental footprint reductions, their Middle Eastern peers are lagging behind. Only 11% of respondents considered environmental or societal impact to be key metrics for determining the performance of the projects they are working on, and only 15% cited environmental, social and governance (ESG) factors as a priority investment area for them. However, the global building materials sector contributed about 10% of global greenhouse gas (GHG) emissions in 2019, an issue that can no longer be ignored.

The one exception to this relative lack of environmental consciousness is in organisational expectations of skills needs. When asked what functional skills are in greatest demand to build the delivery teams they require, nearly one quarter (23%) of organisations surveyed identified environmental and sustainability skills, increasing to 27% where organisations expected growth to be greater than their current capacity.

We expect attitudes towards decarbonisation to change, especially with the two United Nations Climate Change Conferences in the region - the recently held COP27 in Egypt and the upcoming COP28 in Dubai. In addition, the increasing need identified in this survey to access private funding will bring with it a greater recognition of the environmental priorities and demands of global investors.

At that point the construction sector is likely to grasp the potential for effective emissions reduction strategies in the region. For example, in a recent **PwC/Strategy& study** we estimated that by substituting recycled plastics, GCC countries alone could cut the expected CO2 emissions from the building materials sector by 2 to 2.5% by 2040, with the added benefits of encouraging innovation, creating up to 13,000 jobs, and boosting GDP by some \$2 to \$3bn over the same period.



# Conclusion

## Change is coming: Together we deliver

Our 2022 survey captures the sector optimism that has been driven by a surge in capital investment following the crisis of the global pandemic. The investment uptick has been region-wide but catalysed by Saudi Arabia, which has ramped up its Public Investment Fund Giga-projects programme. In particular, the sheer scale of the ambition in Saudi Arabia, when quantified as investment dollars, will have to be delivered as a mix of domestic, Foreign Direct Investment (FDI) and public-private partnership financing structures. This momentum is expected to continue over the next few years as KSA pursues its Vision 2030 national transformation programme, and other regional governments pursue their own modernisation and transformation agendas. Infrastructure investment is a key part of the overall transformation of society in the region.

However, it was also clear from our survey that in order to exploit the growth potential within the Middle East capital projects and infrastructure sector, those operating within it must respond positively to the market's dynamic of change.

This is the era of the Giga-project, and these developments are bringing investment and an unprecedented project pipeline to the sector. But such projects are big enough and complex enough to demand new skills and capabilities. These capabilities, in turn, demand the adoption of new technologies and new sources of capital.

**Change means modernisation of the workforce and of technology. It means digitisation, privatisation of the sources of capital and localisation of skills and capacity. It also means decarbonisation of the sector, one area where the evidence continues to show that the region is lagging its global peers.**

Change means modernisation of the workforce and of technology. It means digitisation, privatisation of the sources of capital and localisation of skills and capacity. It also means decarbonisation of the sector, one area where the evidence continues to show that the region is lagging its global peers.

There is only one viable route to wholesale technology and skill transformation, and that is through collaboration between clients, advisers, financiers and stakeholders throughout the supply chain. Giga-projects bring challenges that no one organisation has the skills and abilities to confront alone. Companies will need to seek out collective wisdom, insight and the innovation of the entire value chain.

For the regional construction sector, these may be unfamiliar ways of working. But they will be necessary. Governments, public institutions and private sector companies- both local and international- have a stake in the built future. And they will successfully build it together.



# Survey Participants & Methodology

For more than a decade, the PwC Middle East Capital Projects and Infrastructure Survey has gathered the views of those involved in the planning, funding, design and delivery of infrastructure projects across the region. Our 2022 survey sought the perspectives of project sponsors, developers, functional/technical experts, contractors, financiers and asset managers from over 100 organisations across the region.

The organisations surveyed provide coverage of a significant proportion of the capital projects and infrastructure market through their operations in the following sectors: transport, cities and urban development, real estate, energy and utilities, civil works and social infrastructure, Giga-projects and Mega-events.

Over half (57%) of the organisations that participated in the survey were headquartered in the UAE, and 15% from Saudi Arabia. The large majority work as regional businesses operating in multiple territories, primarily the UAE (78%), Saudi Arabia (47%), Qatar (31%) and Oman (27%).

The respondents from these companies represent many senior and executive management roles, including owners, board members, CEOs and senior management. The principal functions of the respondents were project strategy and planning (21%), organisational functions (14%) and executive management (10%).



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