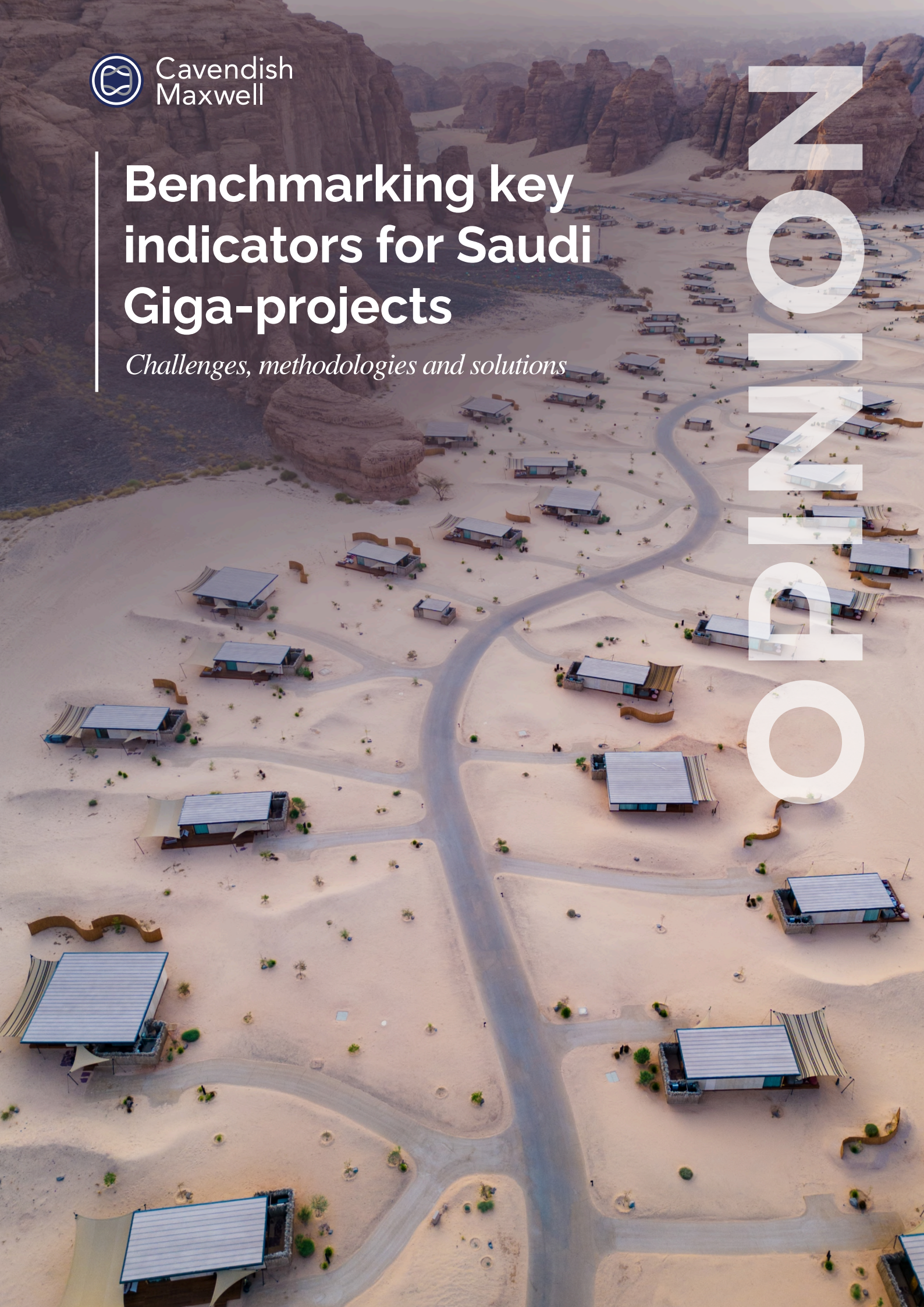# Cavendish Maxwell

Benchmarking key indicators for Saudi Giga-projects

Challenges, methodologies and solutions

OPINION

The importance of Saudi Giga-projects

Saudi Arabia has embarked upon a massive development programme as part of its Vision 2030 plan. This programme includes 14 large-scale and ambitious developments, which it is calling 'giga-projects'. The most well-known of these is NEOM, but other projects include ROSHN, the Red Sea Project and Jeddah Central.

There is no acknowledged international definition of a giga-project. Cavendish Maxwell views giga-projects as new developments that are on a large scale both financially and geographically, and therefore in principle bounded by time and space. Our view for this decade is that any project with an overall planned development budget in excess of $5bn over a contiguous or near-adjacent land area should prima facie be considered as a single giga-project.

This definition does, however, have consequences in terms of inclusion and exclusion. For example, Hudson Yards in New York covers only a tenth of a square kilometre but is worth $25bn,[1] while Eko Atlantic in Lagos covers 10km[2] but has been projected to contribute only $1bn in economic value added.[2] Development companies owned by the Saudi Public Investment Fund (PIF), such as ROSHN – which PIF itself classifies as a giga-project – are in fact a carapace over several projects. Some of these, however, have the same costing and revenue forecasting issues as their single-site brethren such as the Mohammed bin Salman Non-profit City (MISK) or NEOM, the largest and most obviously unique of the Saudi giga-projects. In the Saudi context, the definition of 'giga-project' will in the future certainly encompass more projects than the 14 currently identified by the PIF.

The requirement for investment and lending into Saudi projects of such international significance make the accurate determination of each of their revenues and costs of especial importance. But there is a major challenge in doing so. They are all unique, and many are an order of magnitude greater in scale than any previous real estate development projects. How can the task be accomplished?

Difficulties with benchmarking anything new

Traditionally, costs for real estate development projects have been estimated through a process of benchmarking. In essence this has been an exercise in analysis of 'comparables'. Originally implemented by the Xerox corporation in 1970, it has now become almost universal for major real estate projects. The steps to benchmark a development project are as follows.

First, identify the key numbers and the levels against which construction, operating and other costs and each revenue stream will be benchmarked. Done properly, benchmarking is not cheap and it will not be possible to benchmark every cost and every revenue stream. Some costs, for example, may well have to be 'benchmarked against the benchmark' or estimated separately using standard costs such as those provided by quantity surveyors. Using the right metrics for benchmarking is not as straightforward as many financial models would suggest: data per square metre is very frequently used for construction costs. However, Saudi giga-projects need many more data points: benchmarks for time, cost, quality, safety, sustainable construction, client satisfaction, end-user satisfaction, risk management, productivity of labour, and profitability have been cited as the main requirements.[3]

> *In the current market, comprehensive benchmarks covering entire concepts like NEOM may be scarce due to the unique nature of the giga-project. However, smaller components within the giga-project can be benchmarked against global offerings. For instance, Oxagon within NEOM can benefit from benchmarking against seaport-enabled special economic zones with a focus on clean energy. Similarly, Trojena could be compared to other world-class ski resort destinations. To ensure accurate benchmarking, it is essential to break down larger concepts into smaller, manageable components. Ultimately, while each individual element of the giga-project offers significant value, the project as a whole presents a far superior value proposition when viewed collectively.*

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Developers who benchmark successfully can challenge unrealistic pricing and delivery schedules and also drive down bid prices.[4] In the operations phase, 'owners often overlook the importance of understanding the cost drivers associated with particular asset types and the value derived in use'.[5] Metrics such as room occupancy rates are an example of a benchmark that would be highly relevant for developments in the hospitality sector. Fixed operating costs such as solar energy would be another relevant benchmark, and unit sales prices would be important for residential properties. For Saudi giga-projects, cost benchmarks may be very useful, but traditional metrics such as Internal Rate of Return (IRR) or gross margins on development costs[6] may not be appropriate benchmarks in the context of what are unashamedly strategic, nation-building projects. More important in fact may be economic multiplier benchmarks. These include job creation from construction expenditure, and expected permanent jobs and foreign direct investment per square metre of built environment.

The second step towards successfully benchmarking a development project is to obtain the most recent estimates of the revenues and costs for comparable developments. The third step is to combine those estimates. This is not a simple process of averaging, but instead requires a weighting approach which can range from a simple linear regression to a very complex multi-stage structural model,[7] often employing building information modelling (BIM) to generate the quantitative aspects of the proposed development.[8] This modelling is well within the capacity of chartered surveyors such as Cavendish Maxwell, and is equally found in academic and government settings. BIM likewise is frequently used by developers and construction companies throughout the Gulf, even on small-scale projects.[9]

The importance of benchmarking is widely recognised throughout the giga-projects in Saudi Arabia. The NEOM Benchmarking Expert Network group, for example, meets every fortnight to assess data collection and review the performance of the Procurement Benchmarking Tool.[10] However, the difficulty is that benchmarking by definition relies on comparables and these are hard to find for anything new. Examples are plentiful, although they rarely derive from the traditionally conservative real estate industry which has, until recently, been an easy industry for analysts seeking comparables for valuation purposes. In other industries, however, the problem has been acute. Probably the most famous was the Concorde supersonic airliner, which had no parallel in the commercial aviation industry. Evidence from military aircraft programmes should have been integrated into the costing process to reach a plausible outcome but was not. High-speed rail programmes of the past such as the TGV in France were also difficult to benchmark, although their spread worldwide has rendered that task easier, including in Saudi Arabia. Both are also examples of technological leads that eventually led to profitable operation, although the governments that sponsored them never integrated them into either long-term aviation or transport planning respectively, a lesson that has been comprehensively learned in the context of the Saudi giga-projects.

What methodologies can be used?

The methodologies all involve a hunt for suitable comparables. Here is the crux of the matter: it is often claimed that giga-projects cannot be properly benchmarked, that any chosen comparables may simply not translate. One reason often cited is that jurisdictions as a whole may be fundamentally different. For example, some critics suggest that it is impossible for Saudi tourism to rival the West. However, this criticism is already being proven incorrect. It is worth observing in this context that such criticism can work both ways: for example, when it comes to Islamic religious tourism, Saudi Arabia has a permanent superiority.

Another problem often cited with finding comparables for giga-projects is their size. But this often reflects a failure to look widely and creatively for comparables. The Red Sea project as a whole, for example, covers 28,800km² and ninety islands. By comparison, the Seychelles covers just 457km². The Seychelles therefore would not make a good benchmark. But just one county in Florida, Miami-Dade, covers 6,297km² and may therefore be a better benchmark. There are to be 50 resorts eventually in the Red Sea development – Miami-Dade alone has more than 450 hotels. In terms of projected tourist numbers, the similarity in size between Miami-Dade and the Red Sea becomes even clearer: in 2023 there were 17.3m room nights spent in Miami-Dade. By comparison, publicly disclosed Red Sea resort projections are for 1.5m tourists in total.[11] For benchmarking purposes, the number of nights tourists spend in the Red Sea will also need to be projected to derive a direct comparison, but benchmarking the Red Sea against Miami-Dade is at least feasible so far as size is concerned. The county is also a plausible contender for sales price comparables.

Another challenge to the use of benchmarks for giga-projects is how rapidly they are being created. Miami-Dade has evolved over a century or more, while the Red Sea project will open its doors over a matter of a decade. This may give rise to caution over a direct comparison. On the other hand, however, the timescale for NEOM has always been measured in decades. Similarly, New York was not the right benchmark for Riyadh two decades ago when its population was almost one-and-a-half times greater than New York's and the disparity in economic indicators was large. Now, however, population numbers are almost equal and the economic trajectories of both cities are converging. So, whereas the entire project stretches over 26,500km², an enormous area and larger than any other new city in history, with the Line alone projected to house 9m people, over the next decade a much smaller, more manageable NEOM first stage will take shape. This will make benchmarking easier.

There are two other aspects of the cost and revenue forecasting process to consider. First, benchmarking is only one input: demographic and tourist data as well as the ability to build greenfield contemporary luxury will drive occupancy rates and should also be significant inputs. On that score, each of the indicators are more favourable to Saudi Arabia than to the USA. The need for nuanced modification rather than straight comparators is clear.

The other obvious piece of good news is that the giga-projects themselves have already been able to generate benchmark cost data, and as they start to come online, they will generate revenue data as well. The first at NEOM, Sindalah Island, is already live.[12] Red Sea development projects are also opening their doors. Caution is still required: there will undoubtedly be long ramp-up periods that – if employed directly as benchmarks – will produce implausibly low revenue figures. Giga-projects are themselves also highly individual, so their data will require significant adjustments between each other. But the period of concern is strictly time limited: even by 2030 a substantial body of evidence will be available to share.

There are still risks.

1

There are potential technical difficulties in using benchmarks. This is illustrated, for example, by the need mentioned above to develop a comparison metric between room nights and visitor numbers. Another example is the question of measurement: NEOM has introduced its own set, different even to those that are used in Saudi Arabia generally. [13] A further example is how contingencies are included in benchmark cost data. Technical difficulties such as these are not insuperable; they just demand care and attention to ensure that like is being compared with like.

2

In relation to construction costs, there are also risks associated with working at the margin. Benchmarked costs are achieved historical averages whereas, if construction resources are at a premium, construction companies may be able to extract higher fees through the interaction of supply and demand, especially in more remote locations. Conversely, however, monopsonistic purchasing power such as that exerted by NEOM can bring benefits in terms of lower costs, especially if combined with strategic planning and due diligence to identify suitable contractors and manage the tender process. It was noticeable that Saudi construction cost forecasts for 2024 were more specific [14] by comparison to the previous year, where supply chain issues had been specifically identified as a risk. [15]

3

Exchange rates also pose a problem, especially when they are volatile. The dollar has been relatively stable at high levels in recent years and the dollar peg of the Saudi riyal is exceptionally helpful in this regard for US comparables. However, comparisons between dollar jurisdictions and comparables in Europe and the Asia-Pacific need to carefully consider purchasing power parity and other methods to balance out currency fluctuations. There are also the usual risks of forecasting. Over long periods of revenue forecasting, benchmarks derived from historical examples may become outdated, even with careful escalation, a problem exacerbated by extended construction timeframes. There are acknowledged methods to manage these forecasting risks, including creating scenarios and Monte Carlo analysis. It is worth stressing, however, that these methods only make sense if the starting point is correct, which is what accurate benchmarking is designed to deliver.

Conclusions

There are solutions to the challenge of benchmarking giga-projects

Fortunately, most of the metrics required to benchmark giga-projects are very similar to those found in projects elsewhere in Saudi Arabia and worldwide. Comparables are not impossible to find, as we saw for example with benchmarking the Red Sea project against Miami-Dade. NEOM is probably the most challenging in terms of finding comparables, but new cities have been built – and will continue to be built – and there is sample history on which to base forecasts. The task of benchmarking is both complex and difficult; there are risks in obtaining suitable benchmarks and using them correctly. But with proper advice and access to the right databases, it is a task that can be done, and is being done, throughout Saudi Arabia's giga-projects.

![Cavendish Maxwell logo]

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