



Building a Better and Sustainable Future

Benchmarking in the Construction Industry

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Building a better and sustainable future: Benchmarking in the construction industry

Benchmarking helps facilitate better decision-making and provides a higher degree of predictability in terms of cost, scope, quality and timelines, enabling organisations to achieve better value in construction projects. The process becomes more relevant as companies continuously look for ways to improve their environmental impact and performance. Adopting a benchmarking approach allows companies to understand the impact of sustainable practices and approaches throughout the life cycle of the construction project. In this article, **Linesight and RICS provide insights around the value of benchmarking and how the process can be implemented for construction projects.**

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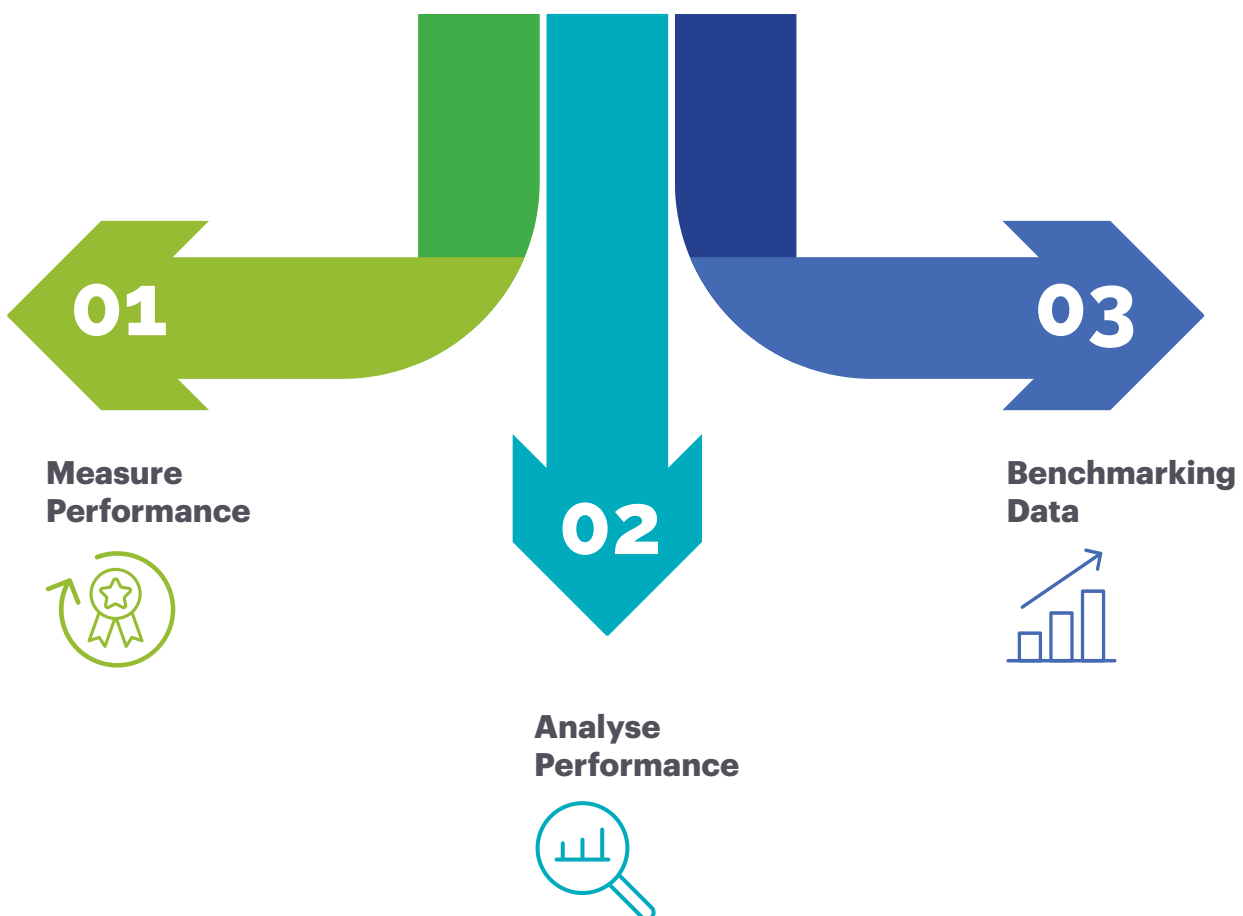
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Benchmarking insight from Linesight

What is benchmarking?

Benchmarking is the systematic analysis of historical project performance data, including delivery timelines, costs of work packages, capital goods and equipment. When compared across multiple projects, such analysis helps organisations understand the trends, gaps and points of leverage informing cost and procurement strategies.

It is a powerful tool for strategic decision making and is fundamental to the continuous improvement of organisations, especially project-based ones.



Why is benchmarking imperative in the construction industry?

Benchmarking adds significant value throughout the construction life cycle but also informs effective planning and risk mitigation strategies.

Planning

- Benchmarking aids in developing and validating a business case and provides excellent forward-planning information, allowing for strategic project execution.

Risk Mitigation

- The process involves identifying potential risks across various areas, such as project timelines, cost estimates, safety protocols, and quality control.

Identification and measurement of scope deviations

- Benchmarking also allows users to identify scope creep and deviation in a project, which impacts project delivery.

Continuous improvement

- Benchmarking can help drive process improvement throughout the project life cycle.

Staying competitive

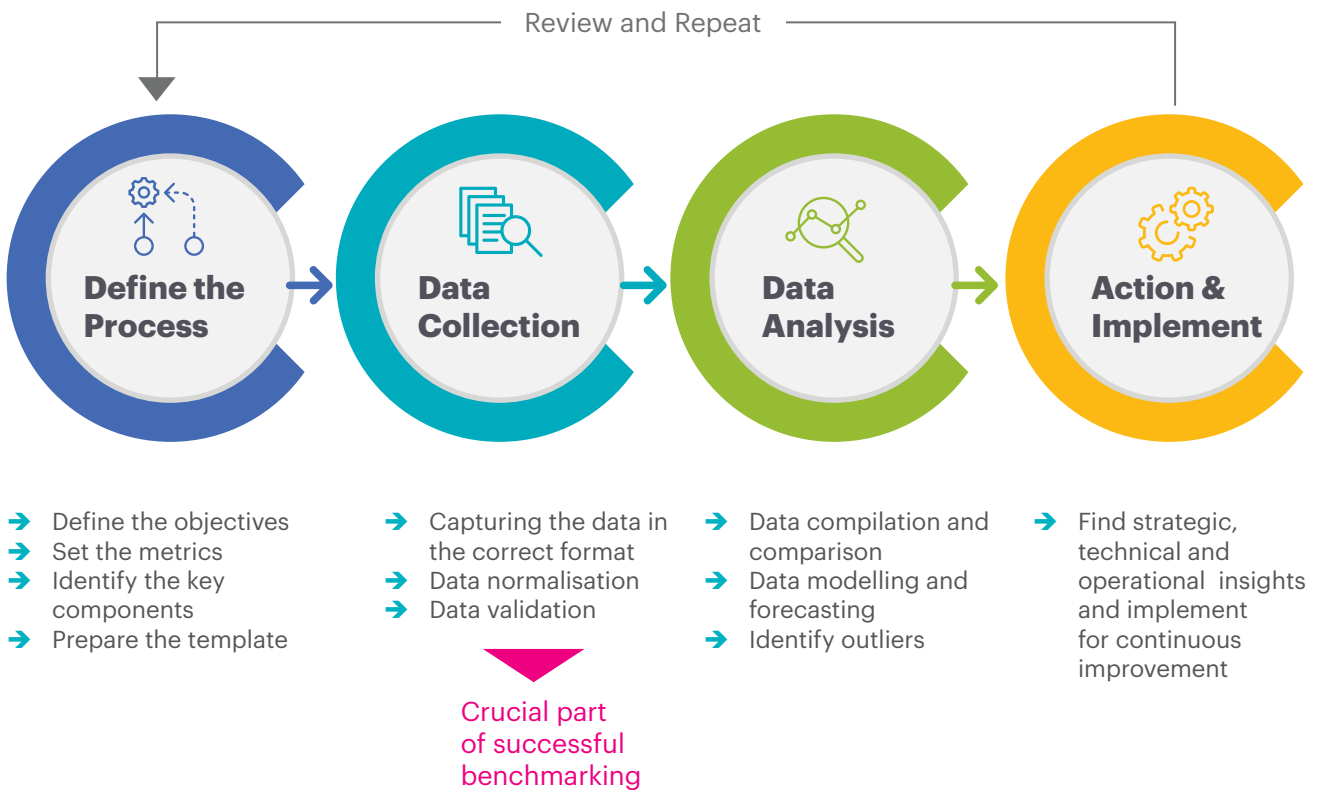
- Benchmarking allows businesses to stay competitive and improve operations by leveraging industry best practices.

Mitigating risk in a volatile market – an example

For a data centre project in an emerging market such as Taiwan, benchmarking can help identify and manage cost risks. A recent study showed that labour and contractor scarcity drove up Taiwan's construction costs, making it comparable to Japan's. In today's volatile global market, conducting a benchmarking exercise before entering a new market can help mitigate risks and avoid unforeseen expenses.

How is benchmarking carried out?

Combining the precision of science, the art of judgement, and the power of technology, benchmarking is a dynamic force that drives continuous improvement in the construction industry.

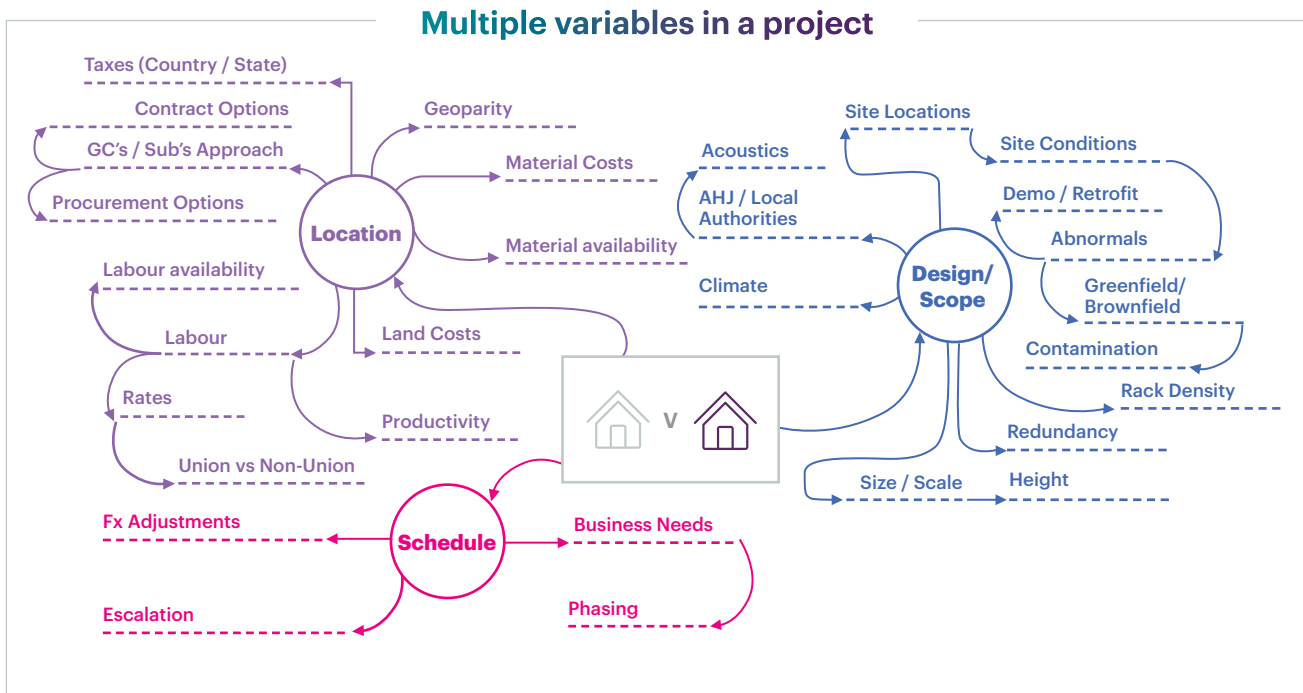


Data normalisation addresses benchmarking challenges

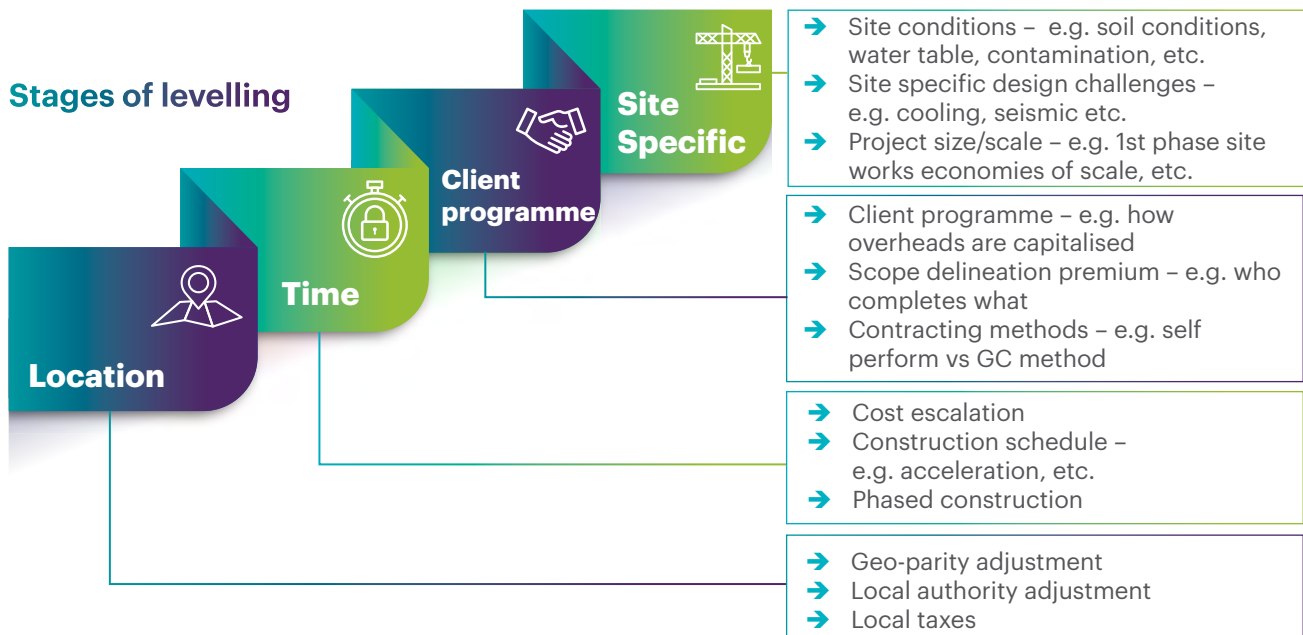
Several variables are associated with different project phases in construction projects, such as design, procurement, construction, and commissioning. These variables may include project scope, size, complexity, location, labour rates, materials costs, and more. When benchmarking, it is crucial to compare projects similar in nature and scope (i.e. “apples to apples”) to ensure meaningful comparisons and accurate benchmarking results. This is where normalisation comes into play. By normalising data, adjustments can be made for differences in variables and parameters across projects to make comparisons on a level playing field.

Benefits of data normalisation

- ➔ Enables deeper level of analysis
- ➔ Boosts data robustness
- ➔ Common baseline across all data points
- ➔ Reduces anomalies and data skewing from outliers.



For benchmarking to be valuable and statistically meaningful, **data should be standardised across four stages** to ensure that irrelevant data or extraneous factors do not skew the outcome.



Application of benchmarking

Case Study: Life Sciences

Linesight is leading a global Capital Project Benchmarking programme in the Life Sciences sector, to benchmark and align data across capital projects. The programme participants include 17 of the world's leading pharmaceutical companies with over 168 projects to the value of more than \$26bn. One of the key reasons for the success of this initiative is the quality of analysis provided by the Linesight team of life science construction experts, who apply real-world experience, to help normalise the data.

Linesight Life Sciences Capital Project Benchmarking Database

168+ projects

in **19** different countries

4,149

Cost data points

844

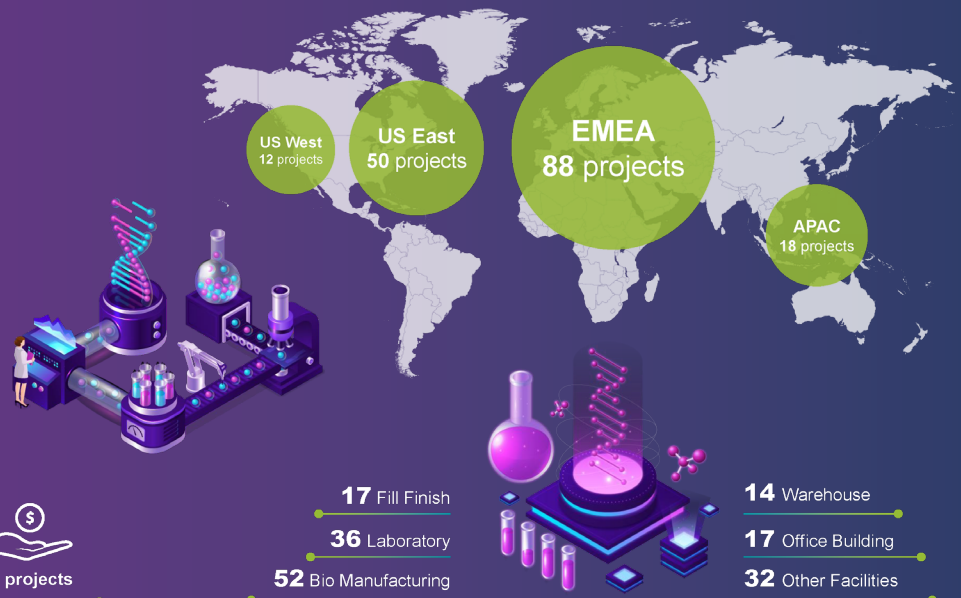
Schedule data points

17

Forum participants

\$26bn

Total value of all projects



Key insight

The Lang Factor uses the equipment planned for a new facility as the basis to estimate an early-stage cost forecast for facility construction. Linesight's data indicates that developing a Lang Factor from a more extensive dataset of projects across a number of large life sciences organisations is more powerful and insightful than simply having a Lang Factor developed from one organisation's project data. Further, it allows for Lang Factors to be broken down into facility types, rather than a broad-brush approach, and factors in peer benchmarking.

“ Leveraging the external benchmarking intelligence that we garner from the Linesight initiative is very powerful in the capital project review and approval processes. ”

Linesight Life Sciences Benchmarking participant

Construction excellence in APAC

APAC countries have experienced significant growth in recent years, particularly in mission critical sectors such as data centres and life sciences across various countries. However, these countries exhibit considerable variations in construction practices, procurement typologies, and the expertise levels of contractors and consultants in the construction industry.

In recent quarters, there has been a lot of volatility in these markets regarding material and commodity pricing, currency exchange rates, and energy costs, leading to volatility in construction costs. It is, therefore, crucial to perform benchmarking at various stages of the project. In addition to this, the mission-critical sectors are increasingly prioritising sustainability to reduce their carbon footprint. Consequently, benchmarking sustainability is emerging as a new trend in the industry.

Developed markets such as Japan and Singapore have well-established construction ecosystems, while emerging markets like India need more skilled general contractors and widescale adoption of advanced construction techniques and technology. In addition, there is also a disparity in the construction and capital equipment quotes in emerging markets. Such differences make local level benchmarking even more critical to accurately estimate project delivery timeline and cost estimation.



RICS-recommended standards for benchmarking

To ensure good benchmarking practices, it is important to have a reliable data collection process that produces consistent data. This can be achieved by creating standard templates that are specifically designed to collect data and record data.

RICS recommends using International Construction Measurement Standards (ICMS) as a framework to capture and validate the data. ICMS provide uniform templates for capturing and reporting several characteristics of construction projects. In addition, the ICMS provides common attributes across multiple construction project types and introduces a consistent level of cost collection and reporting. The standards are based on data collection from a project life cycle and provide three or four levels of cost reporting based on the complexity of the project data. RICS professional statement on cost prediction discusses benchmarking, amongst other cost prediction methods, for use by practitioners. It embodies ICMS for the collection of data and subsequent reporting, a framework against which construction and life cycle costs are classified, measured, recorded, analysed, and presented.

While the right way of carrying out benchmarking exercise is essential, it's equally important to align what needs to be benchmarked. Traditionally, benchmarking has focused on evaluating parameters such as cost, time, quality, and efficiency. However, given the construction sector's increased emphasis on sustainability, there is a growing need to benchmark sustainability metrics as well.

Buildings are responsible for 39% of global energy-related carbon emissions¹, making sustainable practices in the construction industry critical to mitigate their impact on the environment. Two broad metrics that measure a building's sustainability are embodied carbon and energy efficiency. While energy efficiency has received much attention, embodied carbon, which measures emissions during the entire lifecycle of a building material, has recently come up

¹ <https://worldgbc.org/advancing-net-zero/embodied-carbon/>

as a very important factor in measuring buildings' sustainability. By measuring and benchmarking the embodied carbon of building materials, architects, builders, and developers can identify areas where they can reduce the carbon footprint of their projects.

In addition, RICS suggests employing International Cost Management Standard 3 (ICMS 3), a global standard for benchmarking construction life cycle costs and carbon emissions, to capture the broader framework of sustainability. ICMS 3 provides standardised data, mapping to national codes and design standards, and interoperability of data related to design, cost, carbon, and operations. It also facilitates trade-offs between cost and carbon, allowing for informed and sustainable decisions in the construction industry.

RICS also recommends adopting the Whole Lifecycle Assessment approach (WLCA), which provides a detailed methodology in respect to

the measurement of whole life carbon to measure and manage carbon at all stages of a project, including early design through to embodied carbon from materials, operational carbon in the use stage, and to decisions on decommissioning or retrofitting. WLCA aligns with ICMS 3 to provide a consistent output of cost and carbon reporting and to facilitate benchmarking. It also incorporates other professional guidance around embodied carbon measurement.

“ By measuring and benchmarking the embodied carbon of building materials, architects, builders, and developers can identify areas where they can reduce the carbon footprint of their projects. ”



Conclusion

Benchmarking is a powerful and incredibly useful tool to enable data-driven business decisions and improve predictability.

This is particularly important within the current construction market landscape, which has experienced significant volatility in recent years.

The increasing importance of sustainability and green building practices, along with the high visibility of trends such as digitisation, increased competition and globalisation, will continue to shape the future and value of benchmarking in the construction industry.



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About Linesight

Linesight has been delivering professional construction consultancy services and strategic support across a range of sectors since 1974. We have earned a reputation as a world leader in our field – a global network of local experts, providing faster project delivery, maximum cost efficiency and the best value for our clients.

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About RICS

As a globally recognised professional body, everything we do is designed to effect positive change in the built and natural environments. Through our respected global standards, leading professional progression and our trusted data and insight, we promote and enforce the highest professional standards in the development and management of land, real estate, construction and infrastructure. Our work with others provides a foundation for confident markets, pioneers better places to live and work and is a force for positive social impact.

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