

User name: PT Hutama Karya (Persero)

Project name: Navigating the complexities of Jakarta MRT Phase 2A CP203 with digital solutions

Location: Jakarta, South Jakarta, Indonesia

Background:

- Phase 2A of Jakarta's MRT, involving construction of two main underground stations, would help enhance citywide connectivity and mobility.
- Integrating with Jakarta's entire transportation network would reduce traffic congestion and carbon emissions by up to 35%.
- PT Hutama Karya (Hutama) was contracted to deliver the USD 288 million project within 72 months.

Challenges:

- Site constraints and complicated ground conditions existed due to the project being located in a dense urban area.
- Infrastructure and the professionals responsible for designing, building, and operating it are under pressure from growing demand, limited resources, climate change, and more.
- Limited land data and opportunities to conduct borehole sampling for soil analysis.
- Needed meticulous planning and scheduling to accommodate the dense urban traffic and optimize resource allocation.

Solution:

- Leapfrog and PLAXIS were used for geotechnical modeling and analysis.
- ProjectWise and the iTwin Platform assembled all site data, including surrounding buildings, into a digital twin.

Outcomes:

- Construction planning through SYNCHRO 4D reduced heavy equipment use, saving 50 tons of carbon emissions.
- Improved soil data collection and analysis by up to 95%.
- Mitigated risks during excavation, saving up to USD 2.5 million.

Quote: "The precise planning and real-time insights provided by SYNCHRO 4D, iTwin, Leapfrog, and Plaxis also ensured the protection of cultural heritage and optimized resource utilization, delivering both environmental and social benefits on a transformative scale." – Amy Rachmadhani Widyastuti, Vice President of System, IT and Information Technology, PT Hutama Karya (Persero).

Image caption/courtesy 1: PT Hutama Karya (Persero) selected Leapfrog and PLAXIS to undertake geotechnical modeling and analysis. *Image courtesy of PT Hutama Karya (Persero).*

Image caption/courtesy 2: Using Bentley applications for soil analysis assembled needed information with relatively few boreholes, improving the process by 95%. *Image courtesy of PT Hutama Karya (Persero).*

Image caption/courtesy 3: Construction planning through SYNCHRO 4D reduced heavy equipment use, saving 50 tons of carbon emissions. *Image courtesy of PT Hutama Karya (Persero).*

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