PRO ITER

PROGETTO INFRASTRUTTURE TERRITORIO

UNDERGROUND & GEOTECHNICS


BOOMER

PRO ITER Group, private and independent, provides a talent pool of specialists, working, in synergy, in the controlled companies. We are planners, designers, consultants and advisors on every aspect of infrastructure development and environmental protection.

We provide the same personalized services as a boutique specialist firm while, at the same time, summoning a multidisciplinary and holistic team to undertake large comprehensive projects.

PRO ITER Progetto Infrastrutture Territorio s.r.l. covers the entire lifecycle of a project, particularly focusing on infrastructure, building, and maritime engineering design, Environmental Impact Assessment, also including independent design verification.

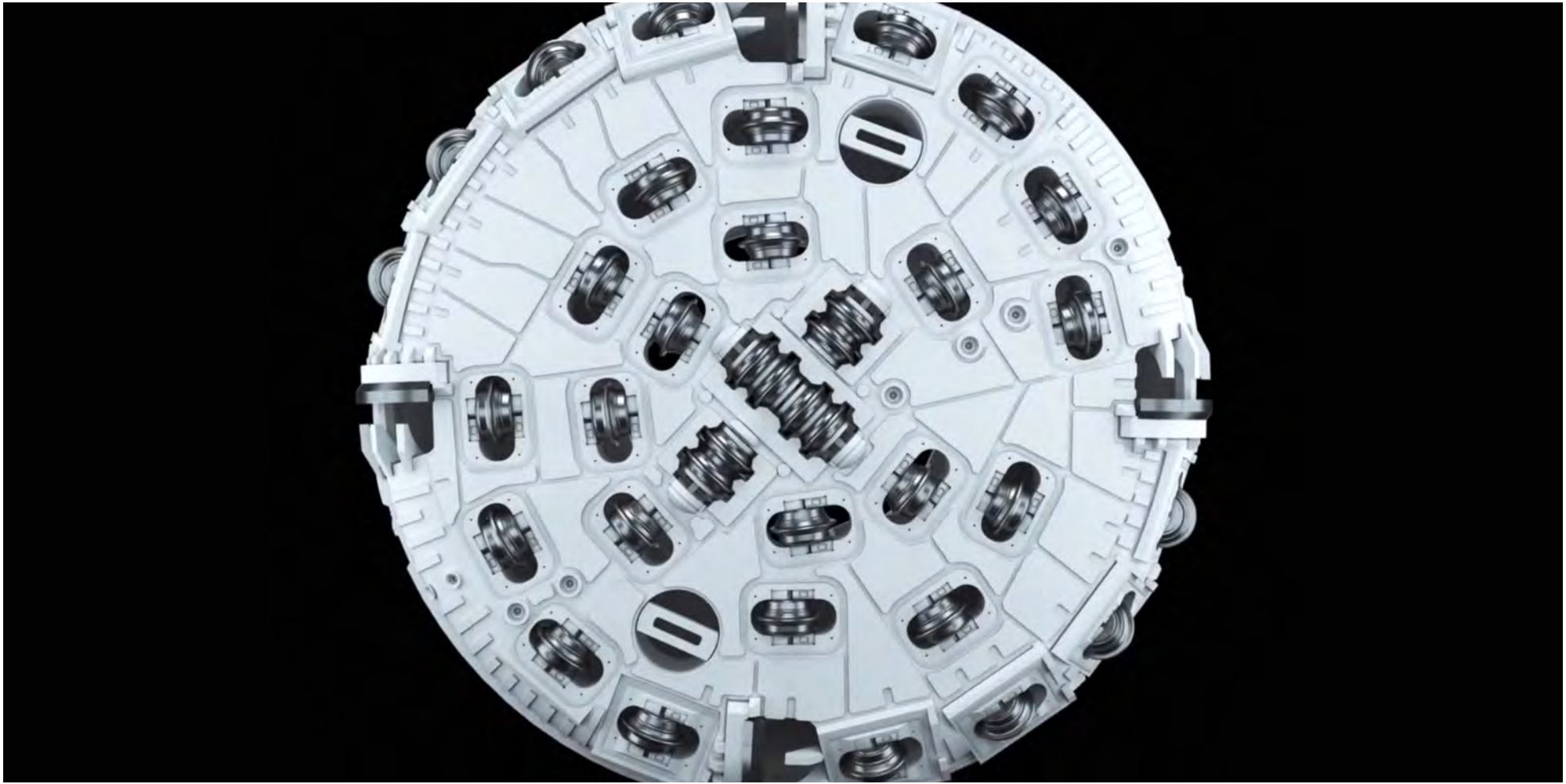
PRO ITER Ambiente s.r.l. operates in the field of environmental engineering with a focus on reclamation of contaminated soils, environment, health and safety (EH&S), environmental sustainability and energy efficiency.

PRO ITER Project and Construction Management s.r.l. supports clients in delivering high-quality projects on time, on budget, also giving consultancy on Asset Evaluation, Risk Analysis, Tender Assistance, Technical & Legal due diligence.

The Underground & Geotechnical Department is part of PRO ITER Progetto Infrastrutture Territorio, covering all the stages of a project, from the feasibility, through design, construction and operation, considering tunnels, shafts and caverns along roads and railways, metro, drainage and irrigation, sewers, hydropower plants or special underground usages.

Our extensive geo-engineering experience covers a wide range of soil, rock and hydrogeological conditions.

We've designed solutions spanning trough all the excavation methods, including conventional tunneling, tunnel boring machines, pipe jacking and rise-boring, among others.

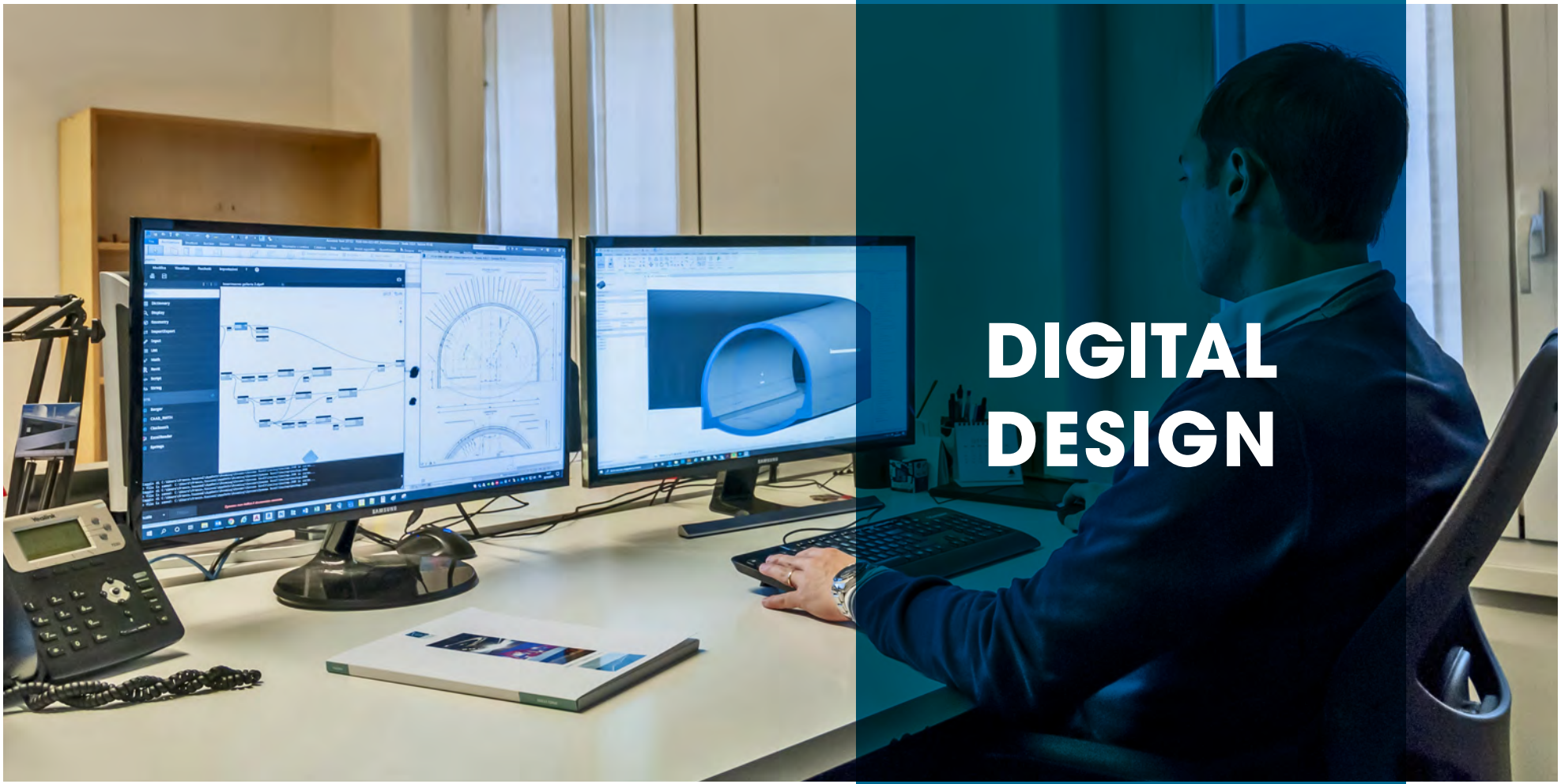


We combine a long track of experience with the use of modern design methodologies, including 3D Geological Modelling and BIM centered procedures, to provide effective, innovative and sustainable technical solutions, ever.

We design urban underground solutions considering the unparallel value that they offer for successfully managing growing cities, supporting and driving economic growth while reducing environmental pressure. We meet some of the most challenging base tunnel projects by combining a deep knowledge of the ground with innovative design and construction technologies, tailored for the job and the context.


Our design is based on full-digital models, processing and analysing geotechnical and engineering data in a unique environment, summoning the contribution of specialties, avoiding working with separated silos.

Using digital technology, we model and analyze the project as a whole, opening opportunities for creating value engineering, considering its interaction with the surrounding, natural and built environment, people.
With the massive growth in the amount of available data coming from construction and operation, the digital model becomes the tool for understanding the monitoring evidence along with the entire project life, supporting the maintenance of the asset value and safety.


DIGITAL
DESIGN


We recognize the priority of the Geological, Hydrogeological and Geotechnical Design Model.

The geological, hydrogeological and geotechnical conditions are among the greatest sources of unknowns prior to actual construction of underground excavations, especially for deep tunnels in rock. These unknowns usually exist in inverse proportional to the amount, nature and quality of the geotechnical investigations. Nevertheless, the adequacy of a site investigation program cannot be measured by cost alone. We work building a robust conceptual framework, basing on a sound scientific approach, starting from the field surveys enhanced by the most advanced tools and methodologies for investigating and modelling.

# GEO MODEL

# RISK MANAGEMENT

We design systematically analyzing and managing, with adequate countermeasures, the project variability, uncertainties and risks.

The necessity of a Risk Analysis & Management driven Design in tunneling has become progressively more and more important also considering the increasing requests in term of safety, environmental and socio-economic sustainability coming from citizens, owners, lenders and insurers.
Positively, the Risk Management is intended not solely on risk avoidance and mitigation, but also as a means to value creation, ameliorating the overall project.

# RISK MANAGEMENT

# INNOVATION

We search, continuously, the most advanced and adequate design procedure and technical solution.

We work basing on a systematic attitude to couple innovation with sound tradition, making the solution effective, following a sound sense of hierarchy of what it's important and what it isn't. Always remembering that the project success is first based on the correct design choices, that must be considered as one of the primary risk-mitigation measures: also a small improvement at the beginning of the design process can define different results at the end.


# INNOVATION

# OBSERVATION

We follow and monitor the projects during the construction and operation phases, basing on a pre-defined scenery approach.

The design countermeasures during the construction must be based on a sound risk profiling procedure that can facilitate the identification of vulnerabilities and loss triggers, encourage mitigation of the potential consequences that could hinder the successful completion of projects. Basing on the identified scenarios, together with the evaluation of their occurrence likelihood and potential consequences (impacts or damages), the design phase before construction identifies when the level of risk needs application of mitigation measures.

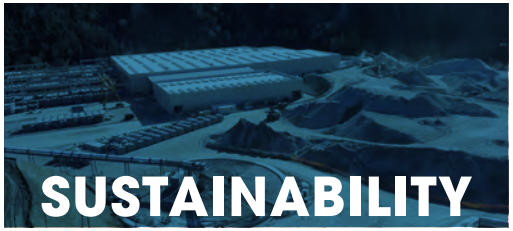

# OBSERVATION


Global exposure to disasters has risen over recent decades. Our interconnected world is susceptible to sudden and dramatic shocks and stresses.

Resilience must be addressed across broad dimensions, covering, as designers, engineering, economic, social, and environmental issues.
Being resilient first involves understanding the sources of risks and learning to cope with uncertainty.

We consider how infrastructure performance might change when shock or stress events occur. Then, we design to prevent failure, ensuring infrastructure systems can withstand the direct and indirect impact of disasters, increasing the territory and cities' resilience.

# RESILIENCE



# SUSTAINABILITY

We design pursuing sustainable solutions from every angle, looking for simplicity, doing better with less.

We are aware of the formidable assets that the underground spaces can offer for successfully managing growing communities, supporting and driving economic growth while reducing environmental pressure. We work basing on a systematic attitude for “do properly, with less”. This means to search from the very beginning design steps the solutions that maximize the overall simplicity and effectiveness of the project. This approach involves digging through the depth of the complexity. To be truly simple, you have to go really deep. The design procedure must be crafted around this intention, rejecting whatever can introduce useless complexity, potentially becoming a source of hazard, and then perfecting the adopted solution.

# SUSTAINABILITY

# SAFETY

We design to keep people safe and healthy at work.

We emphasize the need to be a forward thinker. Incorporating safe design principles from the initial phases of the project guarantees the best possible safety measures, processes, and materials from the beginning. Safe design applies to every phase of the project lifecycle, from the initial conception through operation and maintenance and decommissioning, including the work site and the surroundings.

# SAFETY

# STABILISE

We solve geotechnics needs embracing a comprehensive perspective, summoning the knowledge coming from geology, hydrogeology, soil and rock mechanics, geophysics, hydrology, and other related sciences.

Our services specialize in the design and performance prediction of the foundations of underground works, bridges & viaducts, buildings, retaining walls, embankments, earthworks, natural or artificial slopes, other man made structures & works.


STABILISE

# CONTACTS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**REFERENCES**
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