

1. Record Nr.	UNINA9911001792003321
Autore	Johansson Fredrik
Titolo	Tunnelling into a Sustainable Future - Methods and Technologies : Proceedings of the ITA-AITES World Tunnel Congress 2025 (WTC 2025), 9-15 May 2025, Stockholm, Sweden
Pubbl/distr/stampa	Milton : , : Taylor & Francis Group, , 2025 ©2025
ISBN	1-04-042263-2 1-003-55904-2 1-04-042261-6
Edizione	[1st ed.]
Descrizione fisica	1 online resource (4690 pages)
Altri autori (Persone)	AnsellAnders JohanssonDaniel FunehagJohan NorrmanJenny
Disciplina	624.194
Soggetti	Tunnels
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Cover -- Half Title -- Title Page -- Copyright Page -- Table of contents -- Preface -- Acknowledgements -- WTC 2025 Organization -- Innovative tunnelling -- Tunnelling in a landslide - technical challenges and monitoring -- A special 11 m diameter SS TBM will bore at 47% slope the 1,6 km long inclined pressure shaft of the snowy 2.0 hydropower project in New South Wales (Australia) -- Innovations in tunnelling technology by Bouygues Travaux Publics on the HS2 Chiltern tunnels -- Digitalization of a large tunnelling project through its design and construction -- Transformative construction strategies for smart cavern -- A review of AI applications in caisson construction -- Rheological challenges in bentonite-based fluids: A preliminary study -- Innovative parametric modelling tool for 3D segmental tunnel linings -- Design and construction of FRC tunnel lining with fibre enabled carbon footprint reduction -- Air purification system calle M30 Nuevo Mahou-Calderón -- Designing low carbon two-component grout in the tender process: Oslo E6 Clean Water Tunnel -- Deciphering

geological complexity: A case study of Nabi Karim metro station -- Recent advances in convex-convex joint design for segmental tunnel lining -- Systematic photogrammetry integrated into the Contractor's workflow during tunneling: Advantages and lessons learned -- The concrete delivery system for the construction of the Kühtai power plant (Austria) -- Full scale structural testing on extruded fibre reinforced concrete tunnel segments -- AI & -- Smart Tunnel: Development of new concepts aimed at improving road tunnel resilience through dynamic and predictive risk analysis -- Smart Tunnel in Industry 5.0: Improving road tunnel resilience by dynamic risk analysis -- Digital innovations for primary and secondary lining design in SCL tunnels and caverns.

Underpinning work for installation of new stations in operating subway tunnels -- ITA development in ML and AI in tunnelling -- Creation of underground space for a metro station by micro blasting in heritage precinct -- Sustainable hydrogen peroxide explosives show high performance in tunnel blasting -- Challenges with subaqueous tunnels in Canada -- Rail tunnel excavation of Fault Rupture Zone using construction information from pilot tunnel -- Soft ground hand tunnelling beneath a residential property adjacent to Sydney Harbour -- Digital optimization in tunnel design -- Design challenges on underpinning of Mirage Tower for tunneling -- Digital carbon twins for enhanced sustainability in tunnel design through to construction -- Large span box jacking projects underneath operating railway line and associated ground movement control measures -- Analysis of sustainable complex reduction factors of nonwoven geotextiles for enhanced tunnel drainage function -- Shield parameter optimization based on settlement spatiotemporal characteristics and construction benefit model -- Fire risk and process impact study of battery-electric dump trucks at Norwegian Rogfast tunnel excavation project -- Causal inference-driven optimal control for shield slurry circulation system -- Integrative Feedback Loops: Optimising tunnelling with a paperless Permit-To-Tunnel process for efficiency and safety -- Innovations in the Brenner Base Tunnel project: From planning to operations -- Sprayed steel fiber reinforced concrete: Strength classes obtained through EN 14488-3 Method B -- Immersed tunnel design: Addressing the limitations of Eurocodes and promoting a uniform design guideline -- Introducing an innovative tunneling method to construct underground subway station underground water level -- Unlocking the potential of MWD data in tunnel construction.

LA Outfall Project- Segmental lining design for challenging situations -- Widening work on tunnel in use, with consideration for nearby residents' living environment -- Use of digitalization in underground construction -- Tunnelling method selection for sea and river crossings -- Building better tunnels: Development of Slipform tunnelling -- Sustainable design and execution of a major immersed tunnel project -- Full-scale structural testing for the design verification of a PC Arched cut and cover tunnel in the UK -- Futuristic foundations: Sadar Bazar Metro Station's Trailblazing Redesign & -- Construction -- buildingSMART International (bSI) IFC standards for underground infrastructures -- Multihole grouting: Enhancing operational efficiency and addressing challenges for sustainable grouting -- Design and construction of 13.2m diameter TBM tunnel in low cover area under the sea. Parallel Thimble Shoal Tunnel -- Making the turn: Turning concept with nitrogen skates for tunnel boring machines -- The emergence of digitalisation in tunnelling and the imperative need for embracing automatic digital tools -- A hybrid construction method for underground metro station in dense urban area in Pune metro project

-- On the way to zero emission tunnelling: TBM supply with electric automated service vehicles on a 25 km long heading -- Numerical modelling of double shell lined tunnels in rock environment -- Improved quality control and modeling in drill and blast tunneling using point cloud deep learning semantic segmentation: A case study in Norwegian tunneling -- Tunnel excavation with a pipe umbrella in JET-grouted soil - an example of the observational method in practice -- Steps toward reducing carbon footprint in rock tunneling -- Two different approaches to reduce the CO₂ emission of rock mass grouting.

Roof and culvert jacking method and new friction reducing material for large underpass tunneling -- Use of special segments for ground freezing treatment during cross passages construction -- Analytical formulation to calculate the splitting bearing capacity for fibre reinforced concrete element under concentrated loads -- The importance of wastewater treatment plants for tunneling projects -- Longitudinal non-uniform equivalent stiffness beam model of prestressed shield tunnels -- Re-evaluating restrained shrinkage tests for sustainable sprayed concrete tunnel linings -- Automated digital twin reconstruction for tunnel inspection and maintenance -- Evaluation of displacements induced by metro tunnels and defining thresholds on third-party underground structures -- Field-scale experiment of pre-fracturing blast for EDZ control -- Research on machine learning based health status tracking and diagnosis method for shield tunnels -- Review of the innovative construction technologies in the Grand Paris Express project -- Safety underground -- Urban excavation - numerical modelling of jet grouting -- Technological innovations for safety improvement on tunnel construction sites -- High in situ stresses in deep and long tunnels: Risks and impacts -- Bouygues Travaux Publics - Improving safety underground through training and innovation -- Numerical analysis of suffusion around shield tunnels under train vibration -- Experimental investigation on cascade failure of existing structures caused by instability of shield excavation face -- A global review of work-related diseases in tunnel construction workers -- The feasibility of directional sound signals for improving evacuation in underground infrastructures -- Experience in the application of jet grouting technology in the construction of the Moscow Metro.

Intelligent decision-making on resilience enhancement of shield tunnels based on knowledge ontology -- Data-based risk evaluation on 4 overlapped existing subway tunnels undercrossed by shield tunneling -- Mitigation of impacts on a residential building due to ground loss during excavation for construction of Shitladevi underground metro station -- Reinforcement work at the time of connecting evacuation adits to service tunnels -- Technological safety of underground construction in the conditions of dense urban development -- Protection of an existing metro station parallel to a deep excavation in soft clayey strata: A case study -- Application of enclosed hanging conveyor at tunnel construction in Japan -- Evaluation of risk of falling rocks using numerical analysis considering unevenness of tunnel face -- Optimizing fire emergency evacuation routes in underground coal mines: An application to simulation rig data -- Evacuation risk analysis for a train fire in a metro tunnel -- Integrated system plan for facility replacement technology to enhance the performance of utility tunnels -- Risk assesment for the Italian railway tunnels -- FORConnect Initiation System (FIS) wireless initiation for non-electric shock tube detonators -- Emergency management during the construction of Mont Cenis base tunnel. Safety concept, applications, and first experience on

site -- Strength and failure characteristics of sandstone true triaxial test -- TELT common operations rules -- Safely constructing the longest outfall tunnel in the Middle East -- A neural network-based constitutive model for concrete under elevated temperature in tunnel fire safety analysis -- Numerical modelling of the effectiveness of destress blasting for a footwall drift at Kiirunavaara mine. Analytical approach for determining the mechanical response of a tunnel crossing a reverse active fault zone.

Sommario/riassunto

Tunnelling into a Sustainable Future - Methods and Technologies contains the contributions presented at the ITA-AITES World Tunnel Congress 2025 (Stockholm, Sweden, 9-15 May 2025). The contributions cover a wide range of topics in the fields of tunnelling and underground engineering.
