

Italy



Name: Societa Italiana Galeria (SIG) - Italian Tunnelling Association

Type of structure: SIG is a scientific, not-for-profit association, founded in 1974; its function is to promote, coordinate and spread studies and research in the field of tunnelling and underground construction works. SIG is a founding nation of ITA.

Number of members: The association currently counts 650 members, which represent public companies and organizations, general contractors, manufactures, engineering firms and consultants, universities, and construction companies.

At present, 85% of SIG members are individuals and the remaining 15% are corporate members.

MAIN ACTIVITIES 2015-2016

- SIG Conference for Santa Barbara 2015 – Rome, 3 December 2015
Muir Wood's Spirit – Prof. Pietro Lunardi Lecture and 5th SIG Degree Award Ceremony
- SIG International Conference–Expotunnel–Bologna, 20th October 2016
Challenging and Demanding Tunnelling projects: design, construction and management
- BEFIPS Meeting: Bologna, 21 October 2016
- ITACET and SIG Course – Rome, 1st December 2016
Mechanized Tunnelling: Challenging case histories
- SIG Conference for Santa Barbara 2016 – Rome, 2nd December 2016 - *Handling and reuse of spoil material resulting from tunnelling excavation*
- Technical Visits of major Tunnelling work sites across the country

WGs

The association takes part in the ITA-AITES working group (WGs).

Our experts proactively collaborate with their international colleagues in order to exchange expertise and experience, hence divulging technical, scientific and business know how in underground construction.

Moreover, SIG has also 4 active working groups within the association:

- POS (Tunnelling and Underground Works Design)
- TRS (environmental aspects about managing excavated material from tunnels)
- BIM (BIM applied to underground projects)
- RSH (pre-cast lining damages)

N	Topic	SIG Animateur and WG Representative	MAIL
WG 2	Research	Enrico Maria PIZZAROTTI	enrico.pizzarotti@proiter.it
WG 3	Contractual practices In underground construction	Patrizio TORTA	patriziotorta@libero.it
WG 5	Health and safety in works	Gaspare AVERSA	g.aversa@cipaspa.it
WG 6	Maintenance and repair of underground structures	Mohamed Holad DAHIR	h.mohameddahir@italferr.it
WG 9	Seismic effects	Michela CHIORBOLI	michela.chiorboli@gmail.com
WG 11	Immersed and floating tunnels	Massimiliano BRINGIOTTI	max@geotunnel.it
WG 12	Sprayed concrete use	Enrico DAL NEGRO	e.dalnegro@utt.mapei.com
WG 14	Mechanisation of excavation	Maurizio MARCHIONNI	Marchionni.maurizio@herrenknecht.de
WG 15	Underground and environment	Antonio COSTANTINO	a.costantino@metrocsa.com
WG 17	Long tunnels at great depth	Andrea PIGORINI	a.pigorini@italferr.it
WG 19	Conventional tunnelling	Giovanna CASSANI	Cassani@rocksoil.com
WG 20	Urban problems underground solutions	Andrea SCIOTTI	a.sciotti@romametropolitane.it
WG 21	Lifecycle asset management	Piergiorgio GRASSO	pgr@geodata.it
POS	Progettazione delle opera in sotterraneo	Alessandra SCIOTTI	a.sciotti@italferr.it
TRS	Terree rocceda scavo	Massimo GRISOLIA	massimo.grisolia@uniroma1.it
BIM	Building Information Modeling	Gabriele ECCHER	g.eccher@swsglobal.com
Sig Working Group Coordinator		Andrea SCIOTTI	a.sciotti@romametropolitane.it

YM Group

The Italian Tunnelling Society, has established in 2016 the SIG **Young Member Group (YM)**.

Coordinators:

- Marco Ranieri
- Giuseppe Maria Gaspari

Mission: The YM Group will proactively support SIG WGs activities and will connect young professionals from both University and Industry. It also aims to establish a fruitful collaboration with the others ITA's Member Nations YM Groups.



ExpoTunnel, Bologna, 21/10/2016 –YM Group 1st Meeting
ym@societaitalianagallerie.com

Training -II Level Masters

Politecnico di Torino 2nd level Specializing Master –Turin, 2015-2016
Tunnelling and Tunnel Boring Machines Director: Prof. D. Peila

• University “La Sapienza” 2nd level Specializing Master –Rome, 2015-2016
Geotechnical Works, Design and Construction Director: Prof.S. Miliziano

• Politecnico di Milano 2nd level Specializing Master – Milano, (to be launched in 2017/2018)
Tunnelling Engineering Director: Prof. C. Di Prisco

Publications

- Periodical “Gallerie Grandi Opere in Sottterraneo” (Tunnels and Underground Structures) – (4 publications/year)
Since 1976, the periodical “Gallerie Grandi Opere Sotterranee” is SIG’s pride and glory. It is currently published once every three months and it reached issue 120 in December 2016.

The periodical presents technical and scientific articles, as well as Editor's opinion, news about construction works and tenders around the world, a bulletin from the Italian tunnelling market, reports on technical visits, scheduled training courses and international congresses.

- The Italian Art of Tunnelling 2016 – Handbook on underground projects involving Italian companies in Italy and abroad
- SIG Conferences Proceedings (publication of all the papers presented during the Association's Conferences).

2015 – 2016 – TUNNELS – UNDERGROUND WORKS

Main Projects

Metro

- Naples metroline 1 and line 6
- Rome metroline C
- Milan metroline 4 and line 5

Highways

- Motorway A1 Bologna – Florence – Saint Lucia Tunnel
- Motorway SS640 – Caltanissetta Tunnel

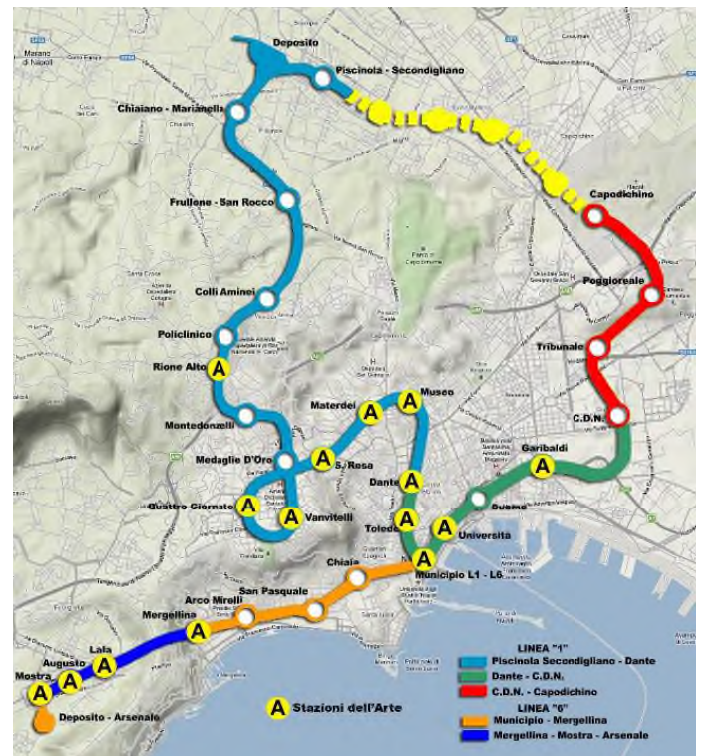
Railways

- Milano – Genova High Capacity Railway line (Terzo Valico Giovi)
- Brenner Base Tunnel
- Torino – Lyon railway line – Maddalena exploratory tunnel
- Napoli – Bari High Speed Railway

Metro Projects:

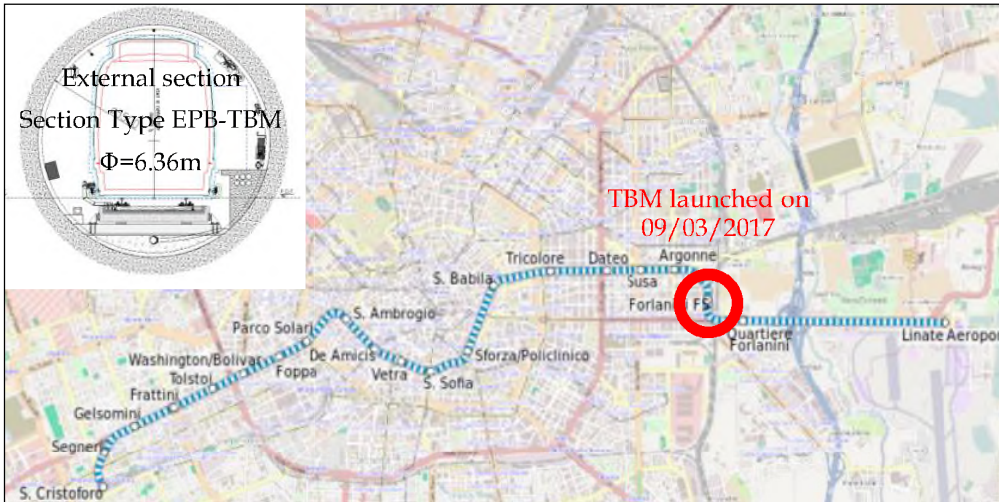
Naples metroline 1 and 6

The Naples Metro Lines 1 and 6 are included into an integrated metro system serving the whole city that today embodies six underground railway lines and four funiculars. This is one of the largest infrastructure projects currently under construction in Italy and it will see, at last, the service expanded with two rail lines, 93km of track and a further 30km of new light rail connecting 114 stations together.



Rome metro line C

Line C is the third Metro Line in Rome. It is the most important strategic infrastructure in Italy and it is one of the biggest European construction projects: the overall investment is about 3.800bn euro. Line C is the first metro line in Italy to be fully automated. Line C crosses the entire city of Rome like a backbone, from the east to the north-west. It extends for about 25.5km (18km underground), with 30 new stations (20 underground).



Milan Line 4

Milan Line M4 will be a “fully automated light rail” system, driverless, with automatic platform doors and a CBTC (Communication Based Train Control) signalling system.

- 2 interchanges with existing Metro lines
- 3 interchanges with suburban railway lines

Milan Line 5

The line 5 Project of Milan’s Metropolitan, follows the “driverless” model

- Higher operating flexibility
- Better security in stations
- Less operating cost

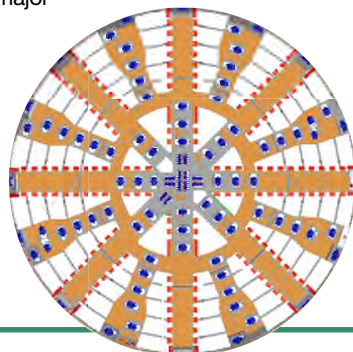
Highway Projects:

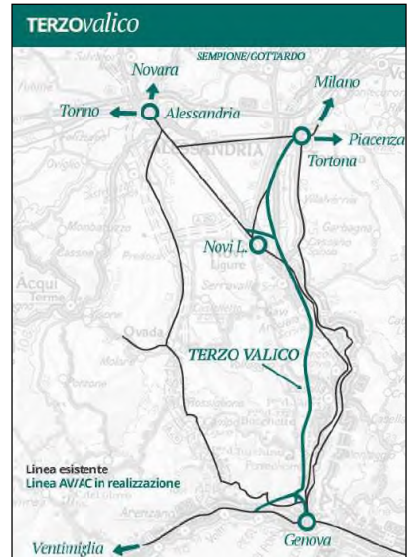
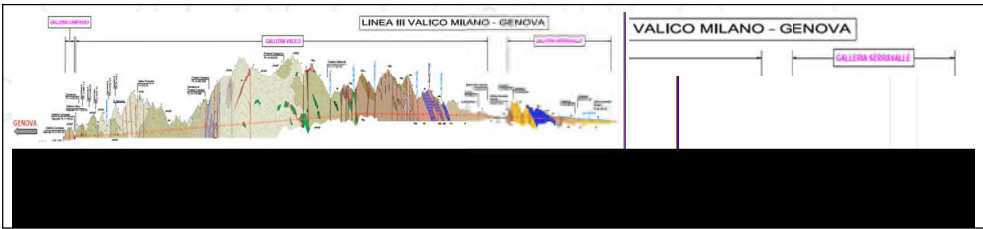
Variante di Valico (A1 Bologna – Florence)

Santa Lucia Tunnel

Expansion of the Appennine section of the A1 motorway, between Bologna and Florence, that is a strategic stretch which links northern and southern Italy and also plays a major role in the movement of people and goods between Europe and the Mediterranean. The project consist of 66.6km with about 50% of the alignment excavated by TBM and conventional tunnelling.

- Tunnel length: 7.548m
- TBM EPB Diameter: 15.87m
- Drive Power: 8750 kN
- Torque: 101296 kNm



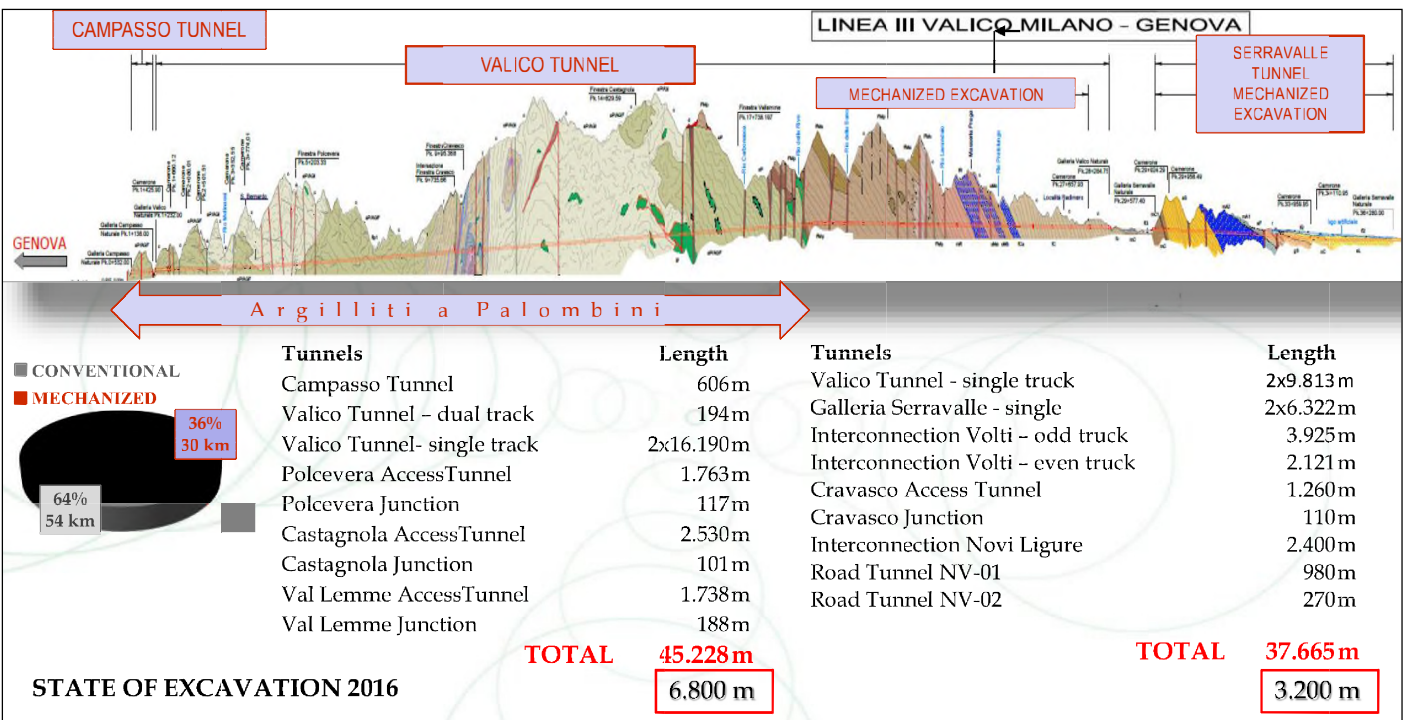


Railway Projects:

Milano – GenovaHS/Terzo Valico dei Giovi: High speed, high-capacity railway line section Santa Lucia Tunnel

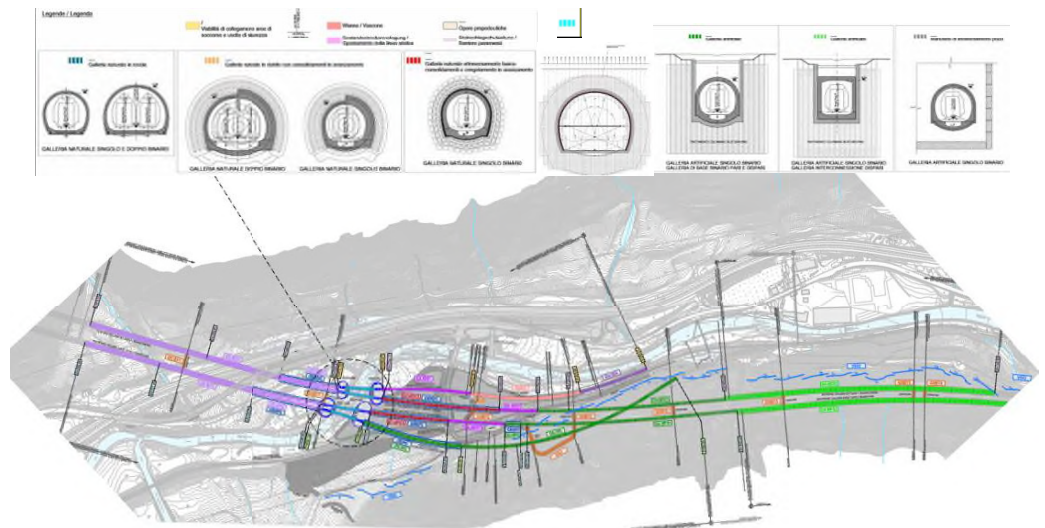
Terzo Valico is a new railway line that will improve railway connections between the Liguria port system with the main railway lines of Northern Italy and the rest of Europe. The project is part of the Rhine-Alpine Corridor, which is one of the corridors of the trans-European transport network (TEN-T core network) connecting Europe's most populated and most important industrial regions.

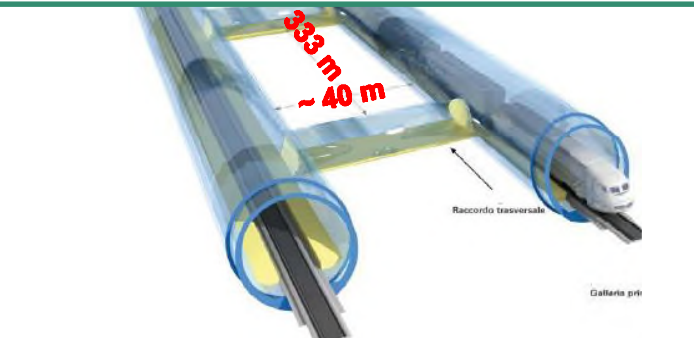
Milano –Genova High Speed Railway



Brenner Base Tunnel

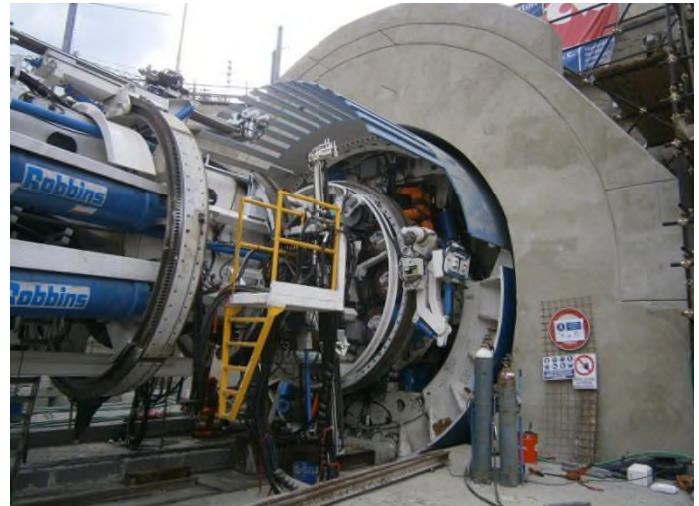
The BBT runs for 55km between Tulfes/Innsbruck and Fortezza and, considering the Innsbruck by-pass, it runs for a total of 64km, making it the longest underground railway stretch in the world. The works include the construction of two single track tunnel (9m dia.) with an underground safety area every 20km and an exploratory/ service tunnel (6m dia).





Maddalena exploratory tunnel

- Length: 7km
- Conventional and TBM (GripperTBM)
- Completed in March 2017

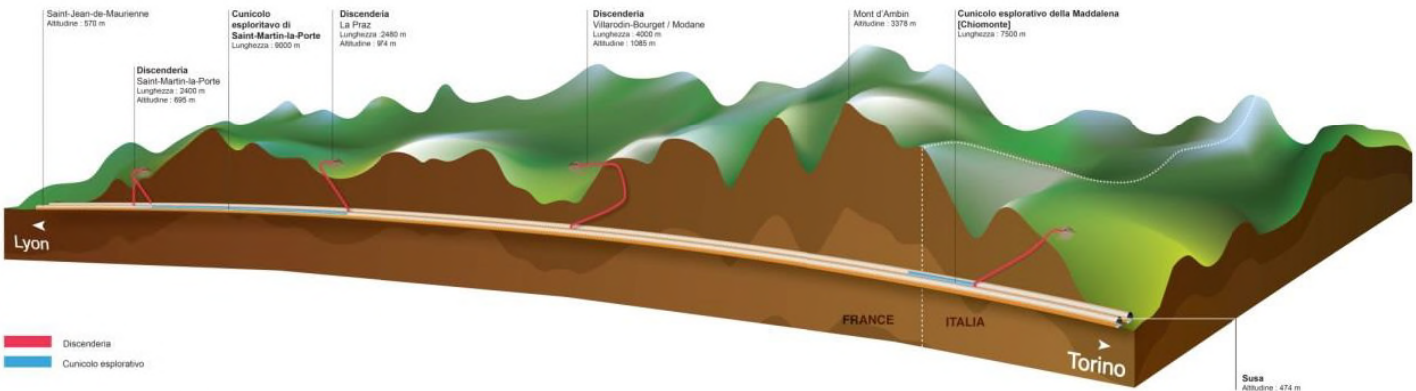


Isarco River Underpass

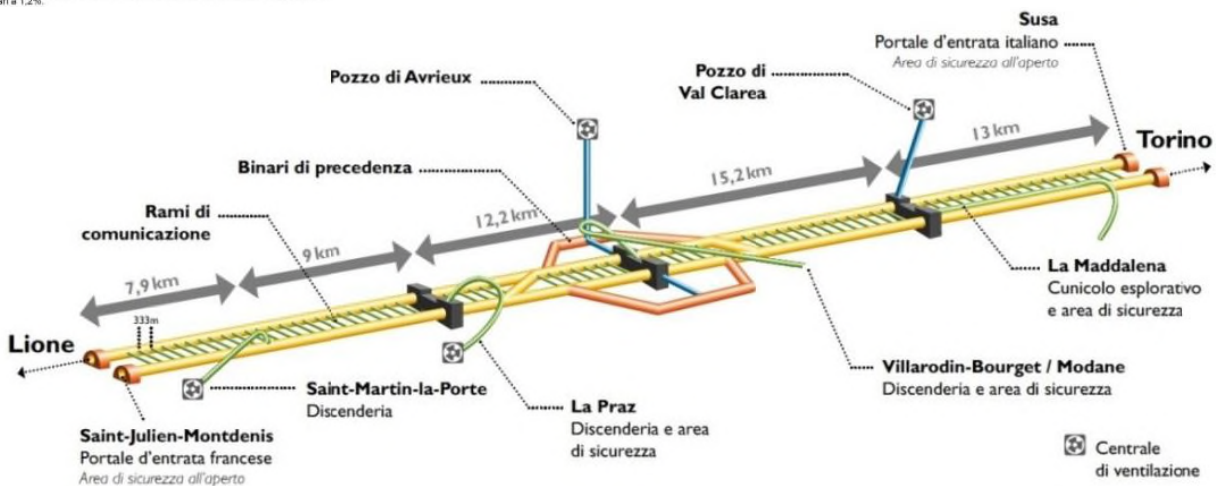
- Section length: 2km
- Total underground tunnel length 5.8km
- Tunnels bored mainly with conventional method and consolidation work (and ground freezing for the underpass of Isarco river)

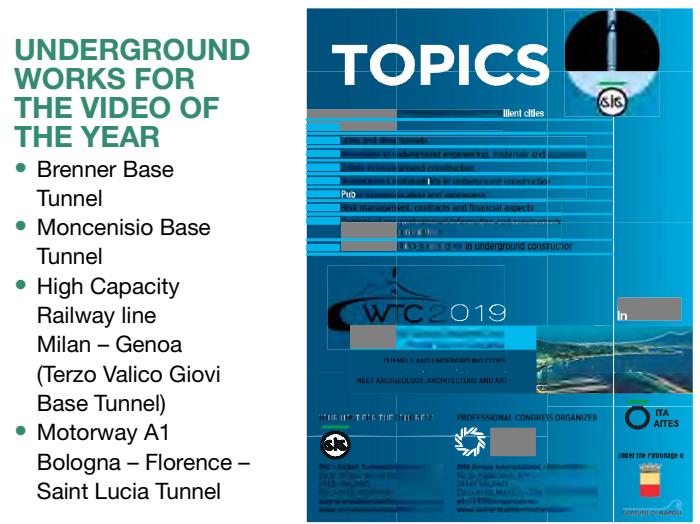
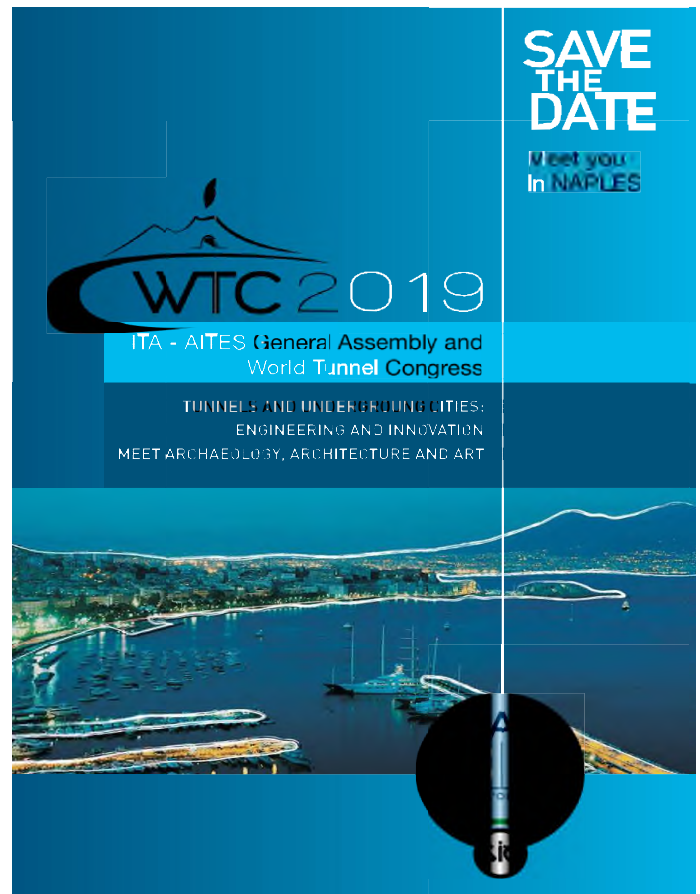
Moncenisio Base Tunnel

- Corridor - Mediterraneo - (Algerias-Ucraina) 3500km
- New Line Torino-Lione – 290km (TELT section 67km)
- Moncenisio Base Tunnel – 57.5km



FUTURO TUNNEL DI BASE ITALO-FRANCESE
 Questo tunnel lungo di 67 km, che è l'opera più significativa del futuro collegamento Torino-Lione, avrà un migliore andamento piano-altimetrico presentando una pendenza massima pari a 1,2%.





UNDERGROUND WORKS FOR THE VIDEO OF THE YEAR

- Brenner Base Tunnel
- Moncenisio Base Tunnel
- High Capacity Railway line Milan - Genoa (Terzo Valico Giovi Base Tunnel)
- Motorway A1 Bologna - Florence - Saint Lucia Tunnel

Naples-Bari High Speed Railway Line

The new Naples-Bari high speed/high capacity railway line is important and strategic work for both national and international connections with the South of Italy. It has been included in the 'Scandinavia-Mediterranean' corridor of the Trans-European Railway Network (TEN-T) that sees in Naples the division of the Corridor, southerly with the stretch Naples-Palermo, and south-easterly with the Naples-Bari line. Five functional and construction sections are foreseen: Napoli -Cancello, Cancello-Frasso, Frasso Vitulano, Apice-Irpinia and Irpinia-Orsara. All the sections have many kilometres in tunnels, underpassing the Appennini mountain chain with difficult geological and geotechnical conditions.

Napoli -Cancello Section

The Napoli -Cancello 15.5km section of the Napoli Bari HS Railway Line, was awarded on March 2017. The section between Naples and Cancello will connect the new Napoli HS Afragola station, with Napoli-Bari as the point of transfer between regional and high-speed services.

Cancello-FrassoSection

The Cancello-Frasso16.5km section length of the Napoli Bari HS Railway Line, will be awarded on April 2017. The project includes a 4.2km double track conventional excavation tunnel, with lateral safety tunnels.



2017 -FUTURE ACTIVITIES

Planned Activities

- SIG International Conference-Samoter 2017-Verona, 23rd-24th February, 2017 -« Long and DeepTunnels for Railway Infrastructure - Design and Construction»
- Sharing Experience - Structural use of fibre reinforced concrete in underground project - Roma 19th May, 2017
- SIG Conference for Santa Barbara 2017 - Naples, 1 December, 2017 - The Roman underground road network in Naples and 6th SIG Degree Award Ceremony
- Technical Visit to job-sites: 5 one day visits to the main Italian tunnel jobsites (2017)

