TMS: the company

- TMS is a French company, specialized in smart jobsite solutions: logistic optimization study on site, development and production of high load carrying systems, full services

- Founded in 1996 and integrated in the Herrenknecht Group in 2012 as a subsidiary

- 2015 - 50 persons with a turnover of 20Mio €
TMS: 95% export on strategic markets
TMS, partner of the major constructors in the world since 1996
TMS: solutions for civil engineering

- **Underground**: tunnelling, mining, digging, arrangement, maintenance, safety, rehabilitation

- **Overground**: bridges, dykes, viaducs… concrete equipment, service vehicles
## Why choosing MSV solution?

<table>
<thead>
<tr>
<th></th>
<th>Rolling stock</th>
<th>MSV</th>
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<tbody>
<tr>
<td><strong>Cost</strong></td>
<td>- Train + additional costs: rails, californian switchs, plates, slippers…</td>
<td>- Vehicle</td>
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<td>- High labour cost: before and after</td>
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<tr>
<td><strong>Security</strong></td>
<td>- Frequent derailments</td>
<td>- Full vehicle control</td>
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<td>- Train can slide even if blocked if rails are wet at a slope &gt; 3%</td>
<td>- Performant braking system</td>
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<tr>
<td><strong>Breaking distance</strong></td>
<td>Up to 30m</td>
<td>3m /4m</td>
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<tr>
<td><strong>Slope</strong></td>
<td>Not possible to use above 6% slope</td>
<td>Can be used up to 25% slope</td>
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<tr>
<td><strong>Loading Point</strong></td>
<td>Obligation to be at proximity of the tunnel</td>
<td>No specific requirements</td>
</tr>
<tr>
<td><strong>Steering</strong></td>
<td>No steering (limited to rails)</td>
<td>3 steering systemes to reach every places</td>
</tr>
<tr>
<td><strong>Access to tunnel</strong></td>
<td>- Difficulty to reach narrow tunnels with curves</td>
<td>- Can access easily even to narrow tunnels</td>
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<td>- Specific ground are required</td>
<td>- All terrain drive, no more work</td>
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</table>
Jobsite advantage example

► No issues with high slopes
Concept: to meet customer expectations

Tunneling, mining: choose your MSV according to your site specificities

**MSV for small tunnels:** water connections, sewage, powerplant...

- Diameter 2.8m up to 4.5m
- Payload up to... your specifications
- Slope until 20%
- Min width: 1m
MSV for small tunnels
→ Brasil MSV 18-1-1000
MSV for medium tunnels:

Diameter 5m up to 6,8m for subways, tramways
Diameter 7m up to 8,5m for high speed train
Payload up to… your specifications
Slope until 20%
Min width: 1,2 until 1,9m
MSV middle tunnels
→ Doha Green Line MSV 37-2-1600 / Qatar

Logistic concept:
- Ring, Personal module
- Material support, Pipes
MSV middle tunnels
→ Doha Green Line MSV 37-2-1600 / Qatar

Material supply, cable drum, crease and oil barrels, conveyor band components
MSV middle tunnels
→ Doha Green Line MSV 37-2-1600 / Qatar
**MSV for large tunnels:** highways

- Diameter 9m up to 20m
- Payload up to… your specifications
- Slope until 15%
- Min width: 1,5 until 1,9m
Smart concept: customer expectations

**MSV for large tunnels**

→ Sluiskil MSV 134-2-1900 / Nederland
MSV for large tunnels

→ Sluiskill MSV 134-2-1900 / Nederland
Our technical options

**MSV options:** closed or fordable cabin, airconditionning, heating, reverse video camera, guidage wheels…

**Additional equipment:** platform, concrete mixer, lifting basket, crane, mortar tank, muck container, personnel module, towing kit…
Service: *customer confidence*

**Our field of expertise**

**JOBSITE NEEDS**  
TMS global cost optimization

**PROJECT MANAGEMENT**  
TMS peace of mind

**FIELD SERVICE**  
TMS commitment

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**Logistic study upstream:**
- Site specificities, technical, economical, human, material and safety constraints
- Community standards
- Risks and flow analysis
- Global cost estimate

**Project management:**
- Help to draw up the tender specifications
- Optimization of the process and of the costs

**Production:**
- PMP® Method
- Guarantor SQDC: Safety, Quality, Delivery, Costs
- Dedicated quality team

**Associated services:**
- Customer advice
- Regular reporting
- Dedicated project manager
- Vehicle evolution according to customer or site needs.
TMS in numbers

From 1996 up today:

300 MSV built

500 km tunnel boring

1,100,000 km travel
3 times the distance between the earth and the moon

11,000,000 tonnes material carried
2 Kheops pyramids
Merci