

# Comparison: Manual, Semi-Automated and Fully Automated Route Planning in TMS

## Route Planning Overview

Criteria	Manual Route Planning	Semi-Automated Route Planning	Fully Automated Route Planning
Role of the TMS	Supporting tool	Decision support	Decision-making system
Role of the dispatcher	Plans routes entirely manually	Reviews, adjusts and approves	Monitors and intervenes in exceptions
Level of automation	Very low	Medium	High
Route creation	Manual by dispatcher	Automated suggestions	Fully algorithm-based
Consideration of constraints	Limited, often implicit	Systematic, rule-based	Comprehensive, consistent and complete
Optimization criteria	Experience and intuition	Costs, time, utilization (predefined)	Costs, service level, CO <sub>2</sub> , utilization, priorities
Responsiveness to changes	Slow, highly dependent on individuals	Medium, partially automated	Very high, even in real time
Scalability	Low	Good	Very high
Dependency on individuals	High	Medium	Low
Master data requirements	Low	Medium	Very high
Transparency & traceability	Limited	Good	Very high
Team acceptance	High (familiar way of working)	High to very high	Depends on transparency & change management
Typical use cases	Small volumes, special transports	Standard networks, medium complexity	Large volumes, dynamic networks
Implementation effort	Low	Medium	High
Economic potential	Limited	High	Very high