



Alstom Transport

The fixed systems
maintenance:
development and
perspectives for the
next 10 years

11 October 2012

TRANSPORT

ALSTOM

Summary

MARKET EVOLUTION

SERVICE CUSTOMER NEEDS EVOLUTION

SERVICE ALSTOM OFFER

ALSTOM SERVICE ORGANISATION

CONCLUSION



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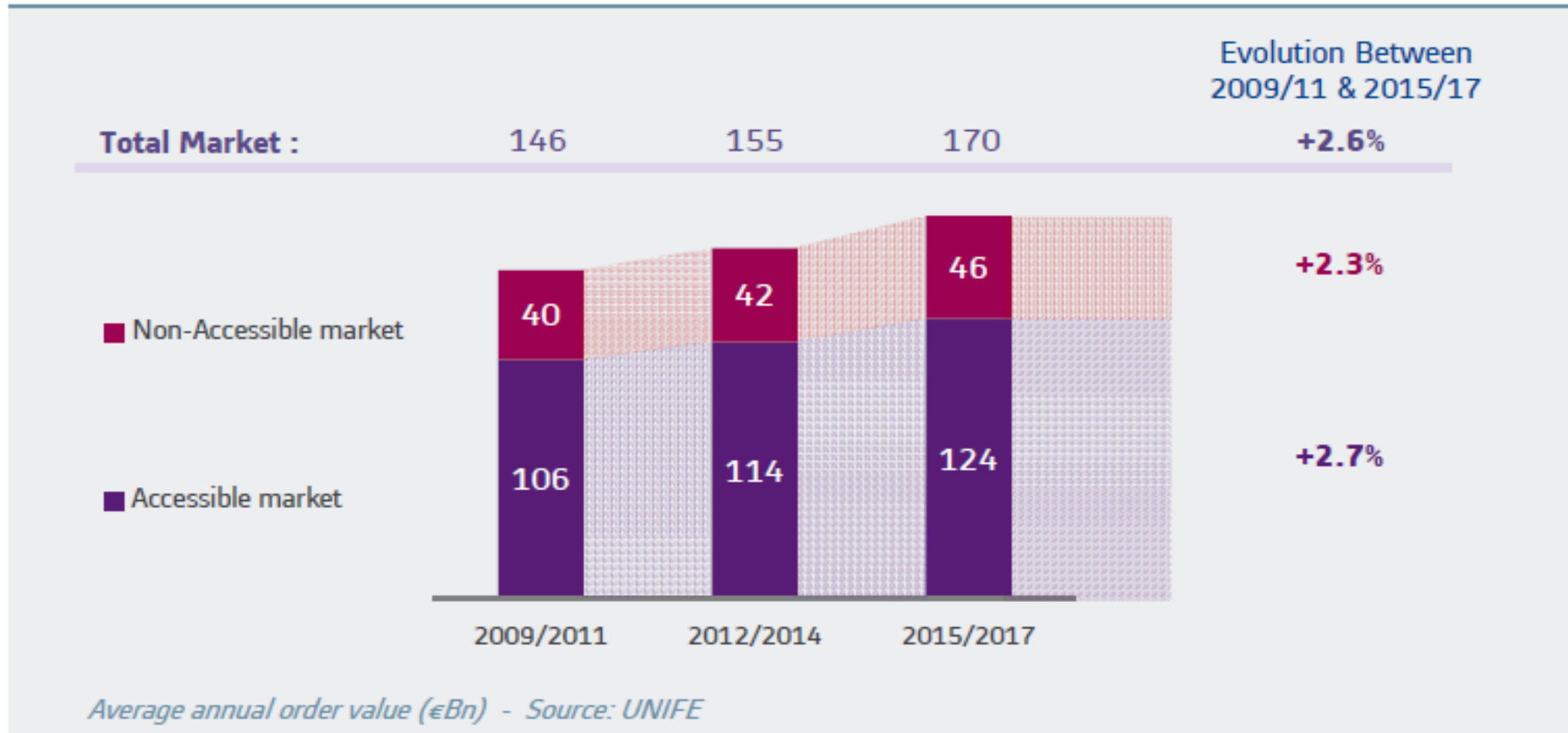
ALSTOM SERVICE ORGANISATION

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A sound Railway Market

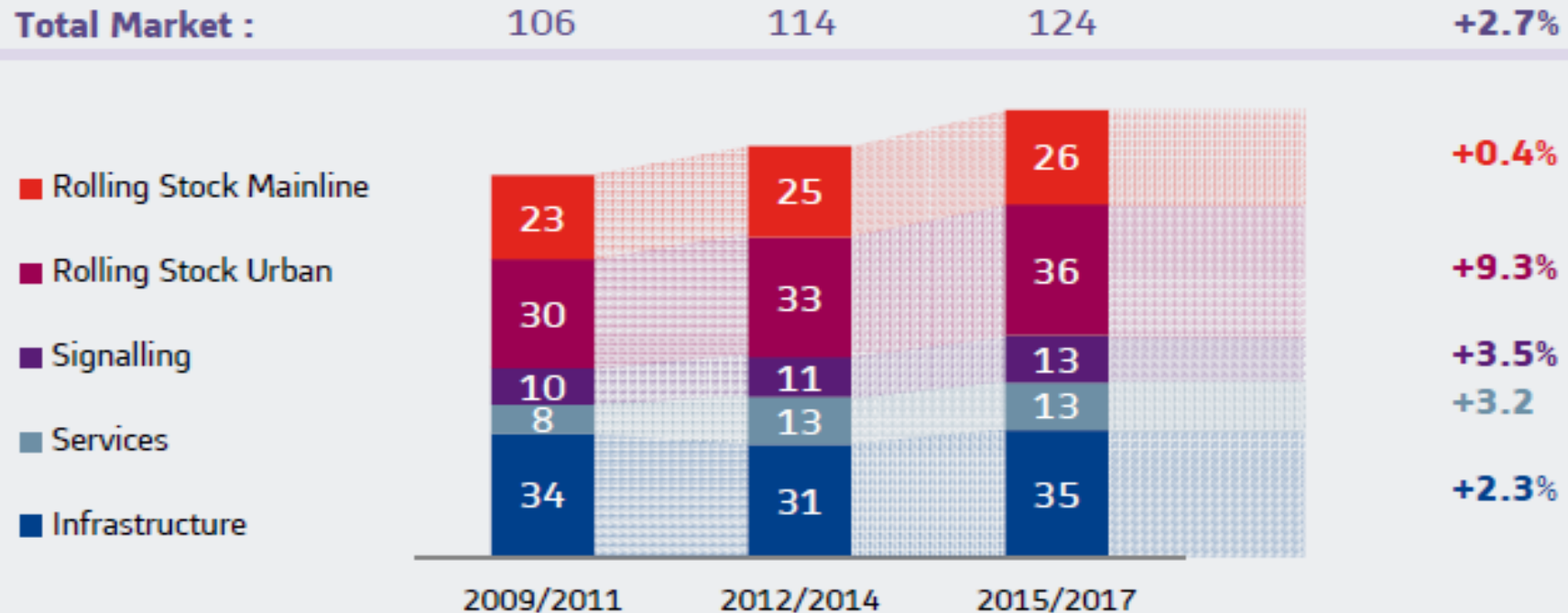
A market still drive by long term positive drivers



A sound Railway Market

Urban segment to lead overall market expansion

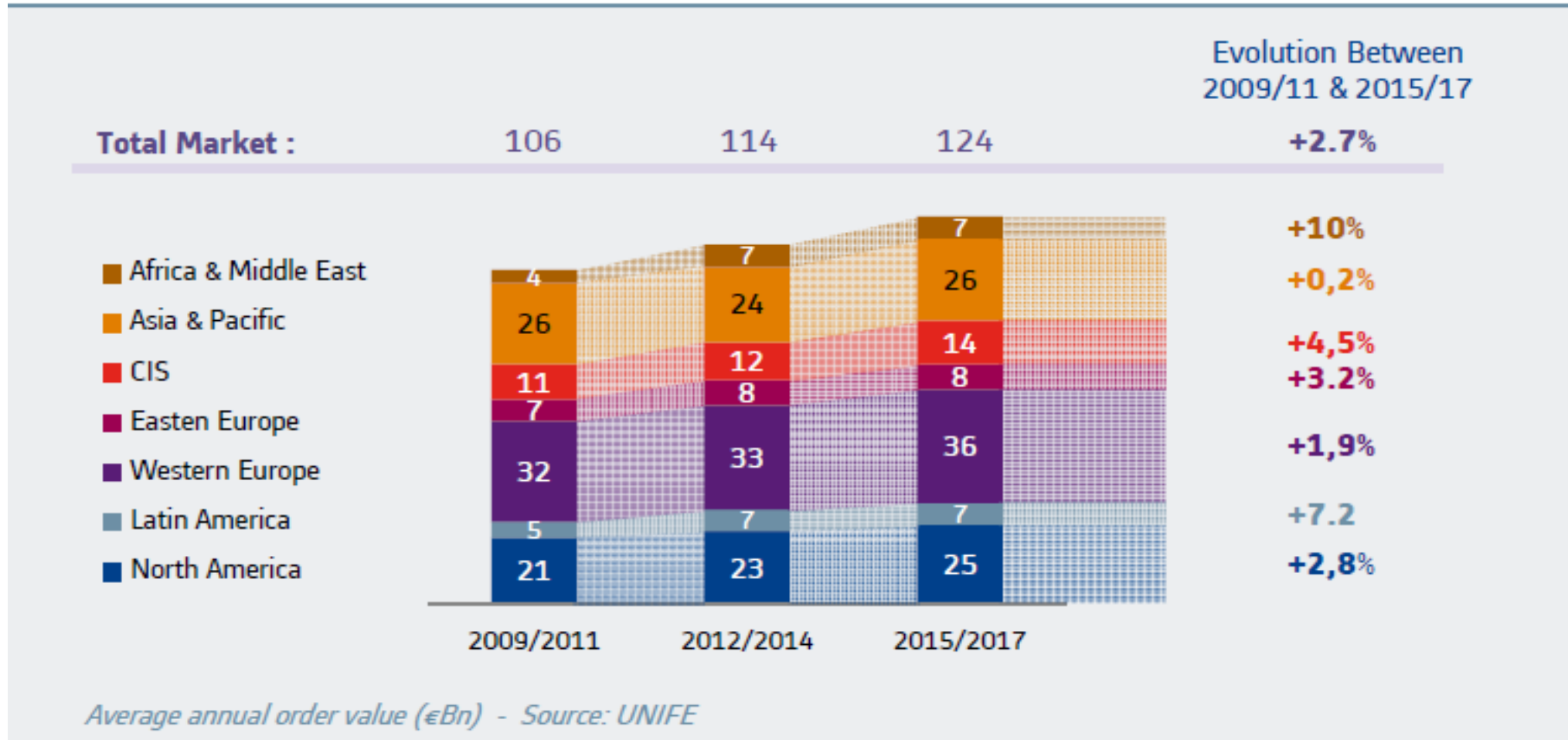
Evolution Between
2009/11 & 2015/17



Average annual order value (€Bn) - Source: UNIFE

A sound Railway Market

Emerging countries to grow sharply



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Operators and infrastructure owner needs

Maximize the useful life of the trains/fixed systems
to optimize the investment

Within a period of 30/40 years

Reliability for end customer satisfaction

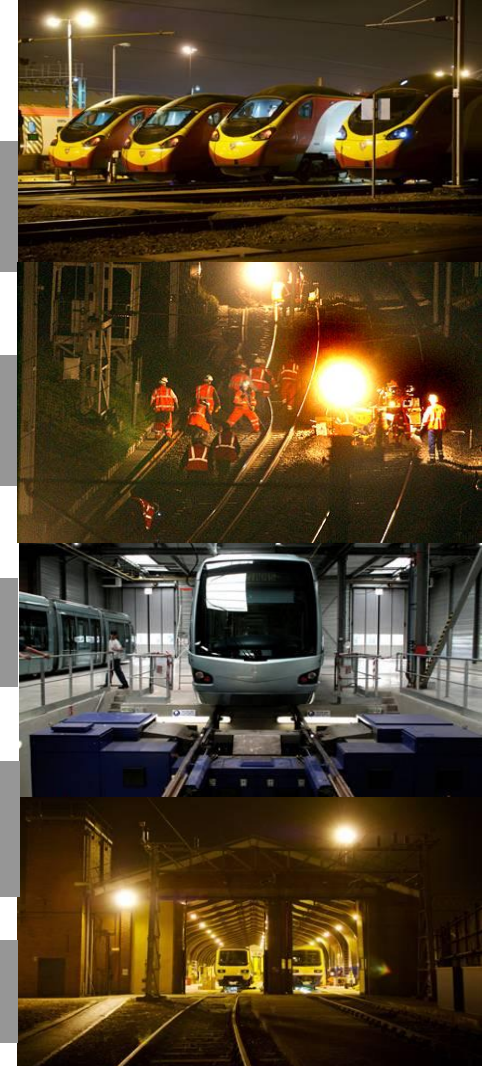
Objective zero interruptions

Availability for maximum efficiency

100% of the trains must be operating

Flexibility and attractiveness of service offers

Optimum cost



Evolution

TODAY

Operators outsource full maintenance on specific products, but maintain a lot of activities in house

Infrastructure owners keep maintenance management in house but outsource specific limited activities to manufacturer or to local installers

TOMORROW

Operators will outsource more and more, renting or selling maintenance facilities

Infrastructure owners will outsource full maintenance activities for high technological Products, testing full turn key maintenance activities



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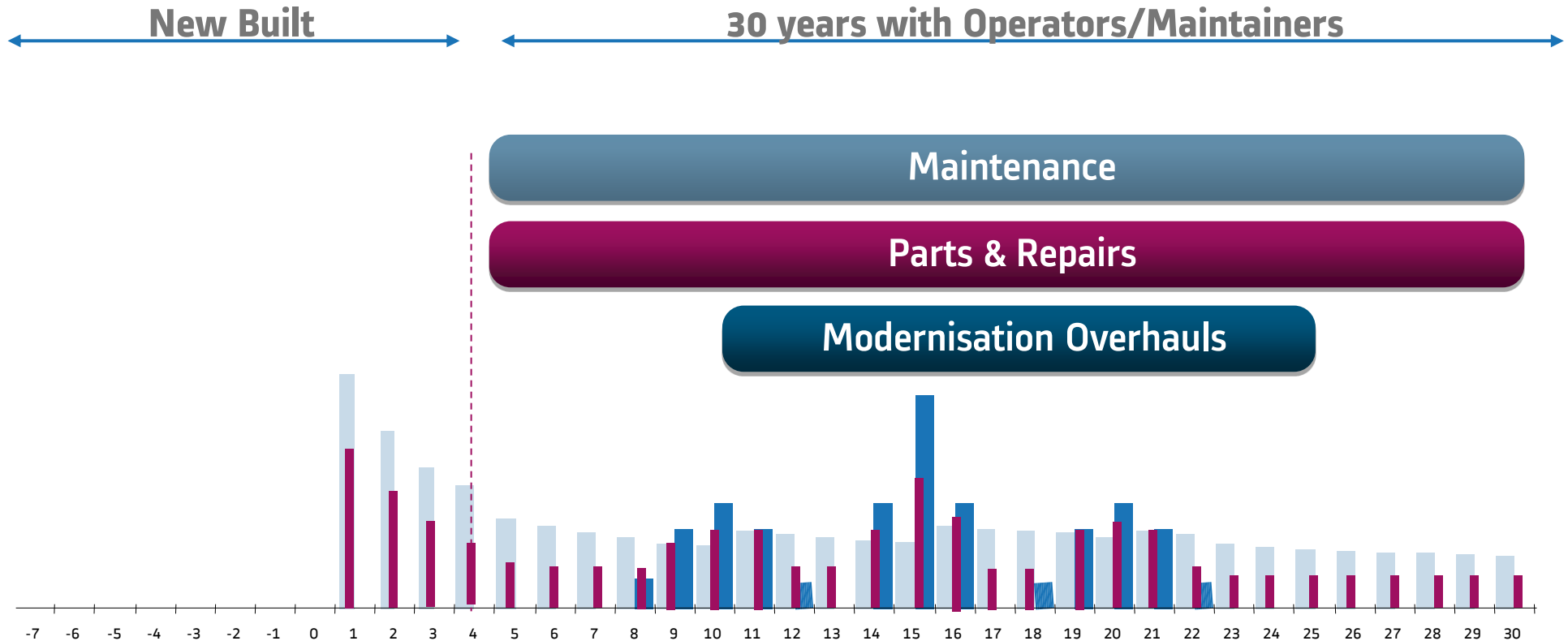
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Train Life Services Offering Total Train Life Management



- 1) Includes investment costs: training and warranty costs
- 2) Includes investment costs: spares end equipment costs

Train Life Services

Performance oriented organization

PARTS



MAINTENANCE



MODERNIZATION



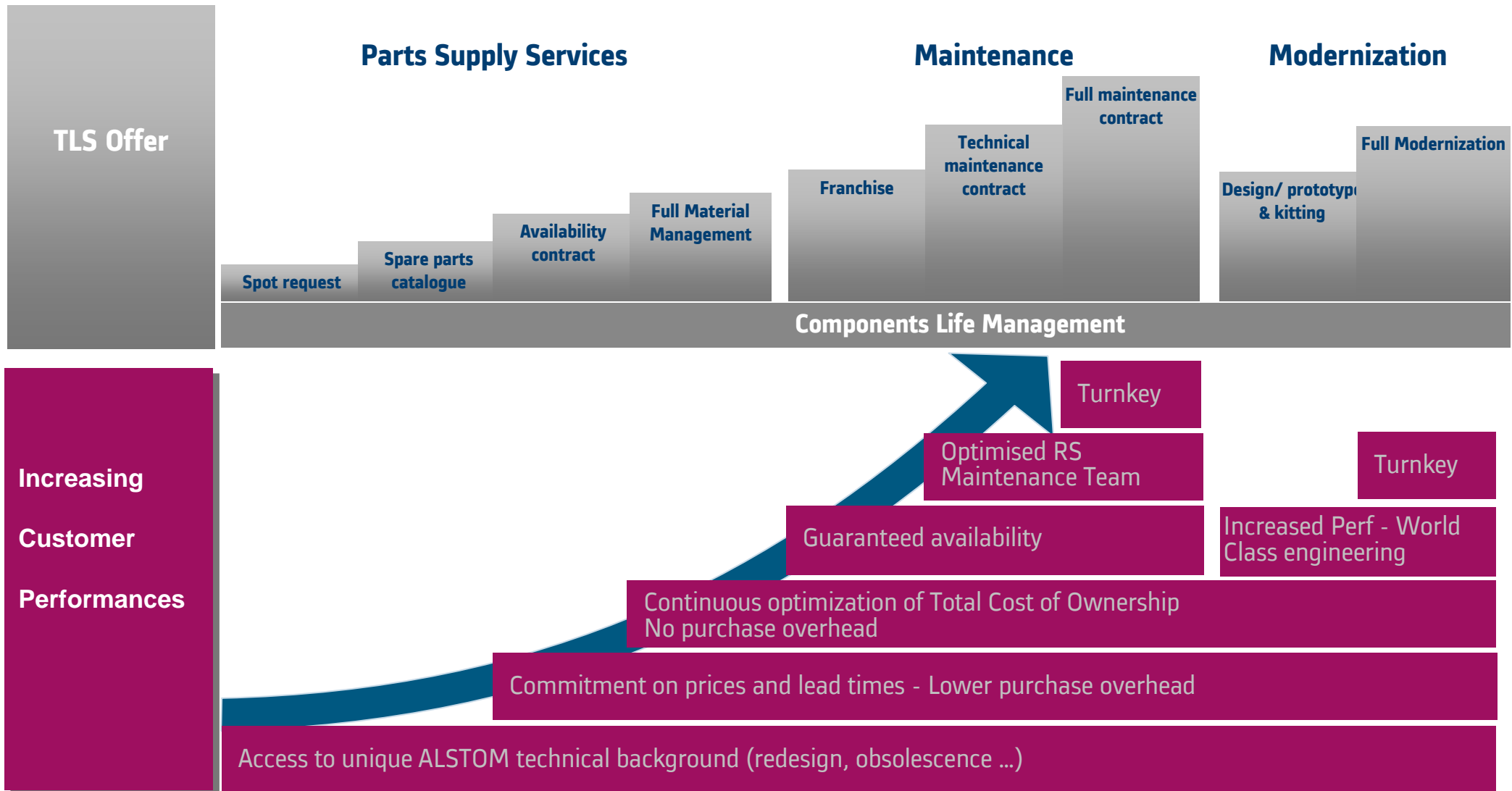
PERFORMANCE

Availability - Reliability - Safety



OPERATOR

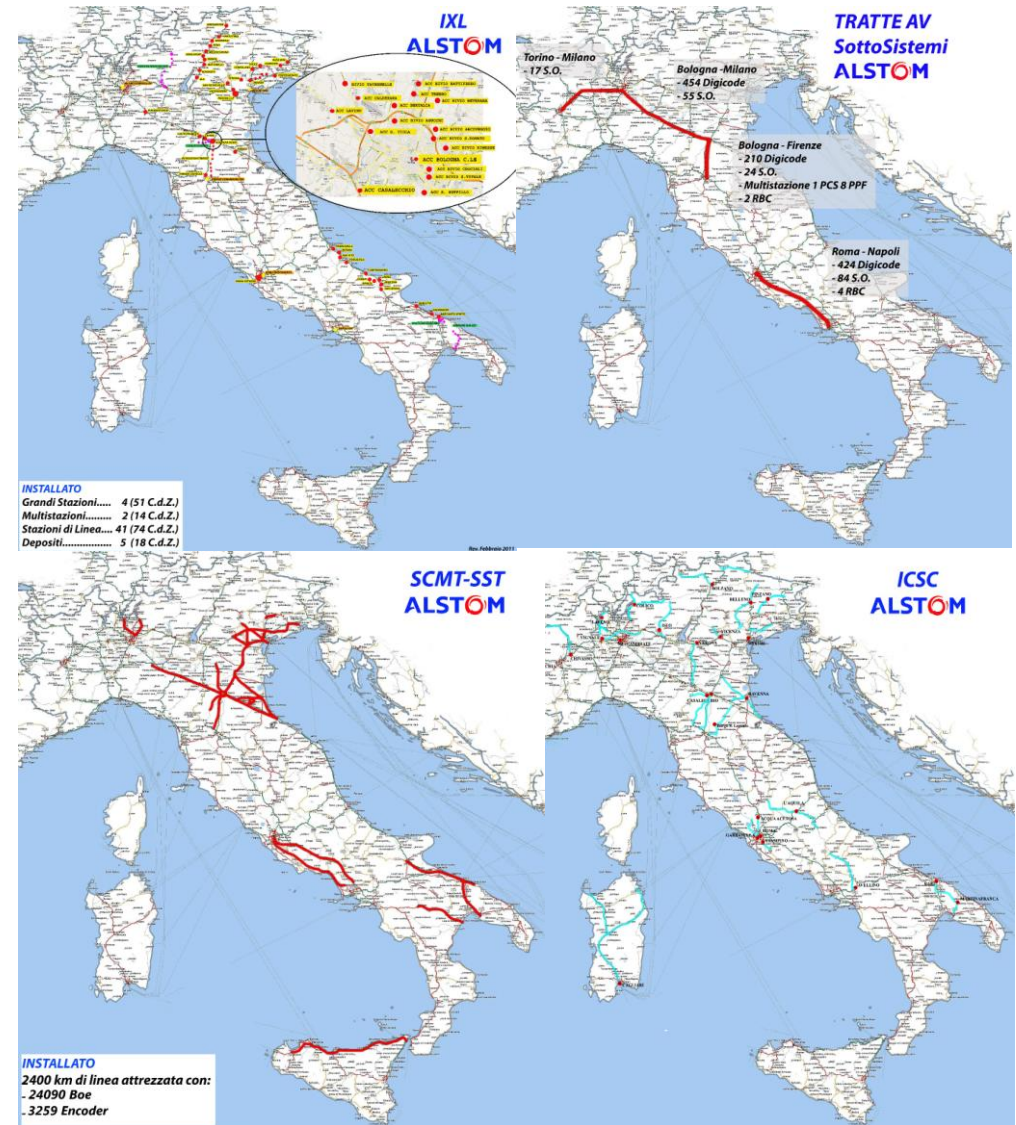
Train Life Services Offering increasing added value for Maintainers & Operators



Signalling and fixed Systems Service Offering

Signalling Customer Service in Italy

- **IXL Systems:** 52 in service
- **HS Systems :** 1 Multistation IXL, 6 RBC, 1078 Digicode , 178 S.O.
- **ICSC Systems:** 10 (CTC+SCC), 250 peripheral post, 10000 LRU. 16 (CTC) on call.
- **SCMT_SST:** 2500km, 24090 Eurobalises, 3259 Encoders
- **Carborne modules:** 2270 SCMT, 1226 STB (SCMT+ARB+DIS), 156 SSC, 192 AV_SSB



Signalling and fixed Systems Service Offering



Alstom Service maintains Alstom-supplied equipment as well as non-Alstom railway networks

Signalling and fixed Systems Service Offering

FULL MAINTENANCE :

- > Management
- > Engineering
- > Production
- > Integrated logistic support



MAINTENANCE WORK TYPES :

- > Corrective maintenance
- > Preventive maintenance
- > Main revisions / overhauls
- > Other renewals
- > Vandalism / damages



Signalling and fixed Systems Service

How deep do we maintain

- > All 5 technical levels
- > All 3 logistical levels



Technical levels		Logistical levels
Level 1	Inspect & clean	Line
Level 2	check & re-set to rights	
Level 3	dismount & swap parts	Workshop
Level 4	repair SRU, tech op.	
Level 5	overhaul, renewal	Industrial

Performance commitment

Alstom maintenance teams successfully involved in performance-based contracts in Dublin, Barcelone, Reims, Algiers, Jerusalem



PERFORMANCES	CRITERIA
Reliability	# of Failures per month per subsystem
Availability	% of operating time, impact of infrastructure assets on commercial service
Time To Repair	Average Time-to-Repair
Ride Comfort	Track measurements
Cleanliness	Inspections
Etc...	

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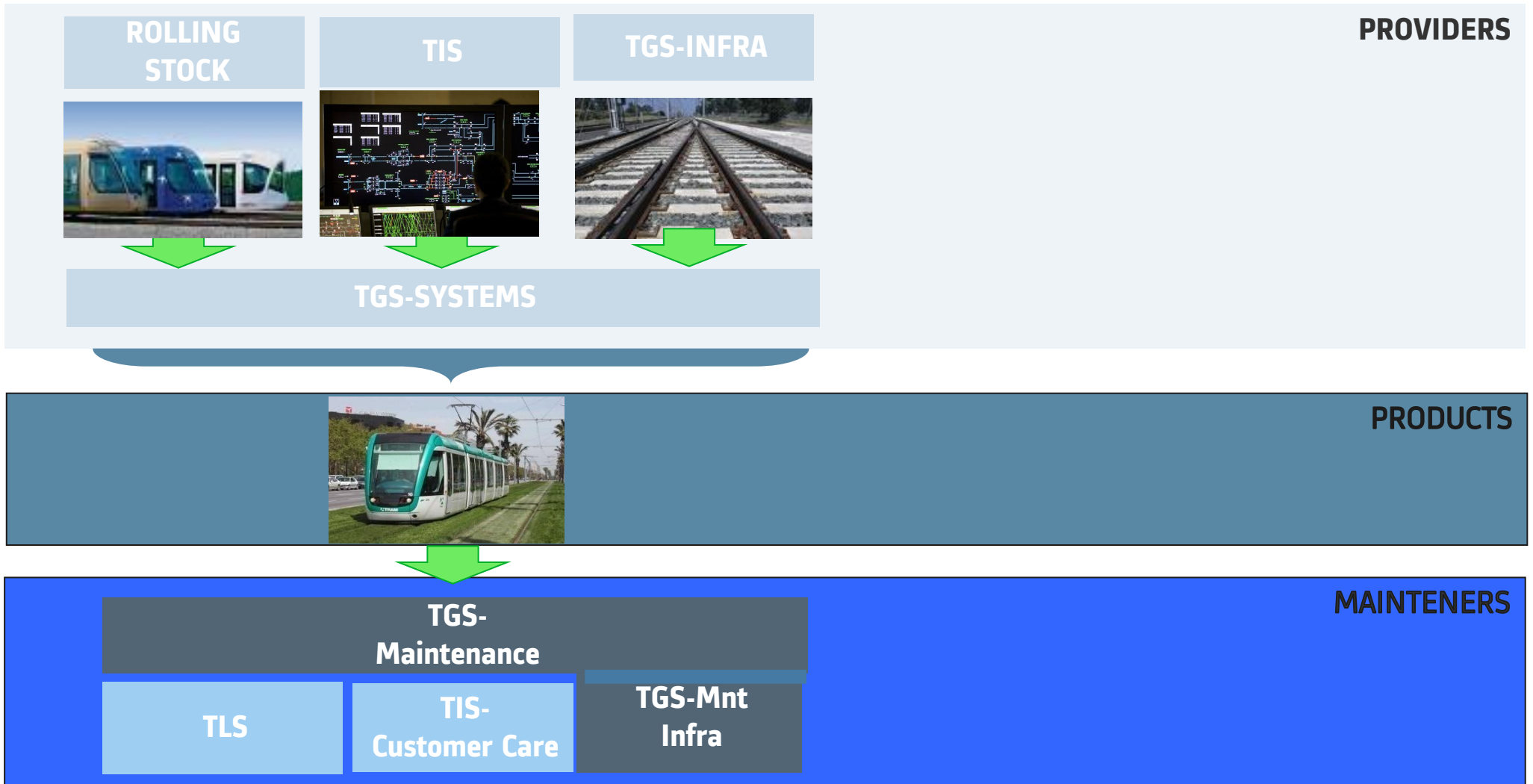
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Our integration role within turnkey projects



Train Life Services transversal platform groups capitalize experience / feedback on new built / improve processes

Rolling stock &
Services
design teams
work together

Service & Maintenance Platforms



Rolling Stock designed for reliability & Serviceability

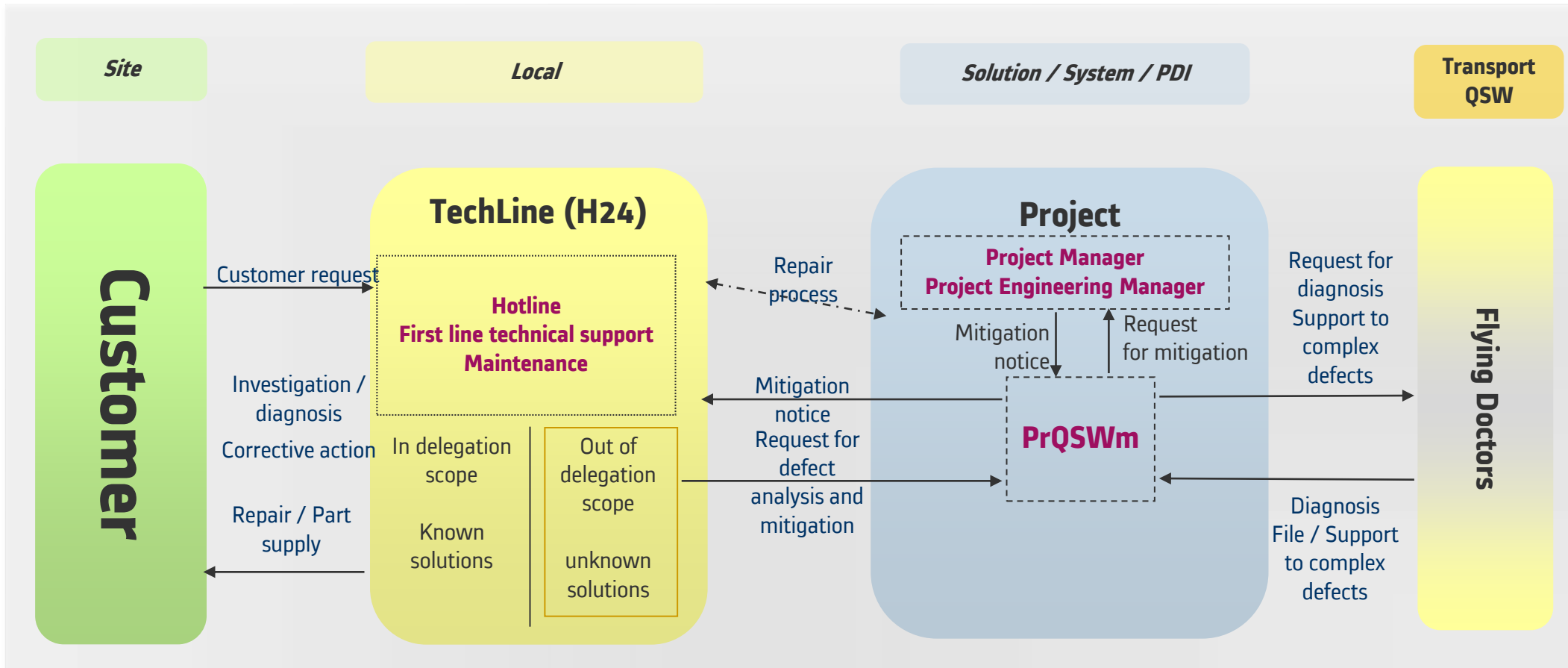
Train working from the first to the very last day

Lower maintenance cost

Easier maintenance

Field experience capitalisation

Signalling example of Call Centre Intervention Service



PrQSWm ensures mitigation of complex defects characterized by the TechLine by activation of PrEM (As “design authority”) to develop mitigation solution and Flying Doctors (for further investigation / diagnosis).

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Conclusion

Infrastructure Owners and Operators demand for maintenance services will increase

ALSTOM has more than 20 years experience of full maintenance management

ALSTOM is the global solution provider to build and maintain a railway transport system

ALSTOM is the partner to outsource any maintenance service



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