



ETCS - Asset management within Infrabel

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Manager Signalling



ETCS: The Asset Management view

Realization of the ETCS Master plan

**New Assets
to be managed
and renewed in
the future**

e.g. how to replace an
ETCS installation?

**New Assets
to be maintained
in real time**

Preventive maintenance
vs. Corrective maintenance

**More complex
signalling system**

e.g. infrastructure changes
become more difficult

ETCS: The Asset Management view

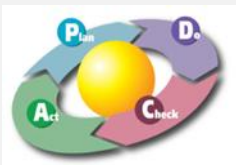
How to maintain ETCS assets?

INSTALLING

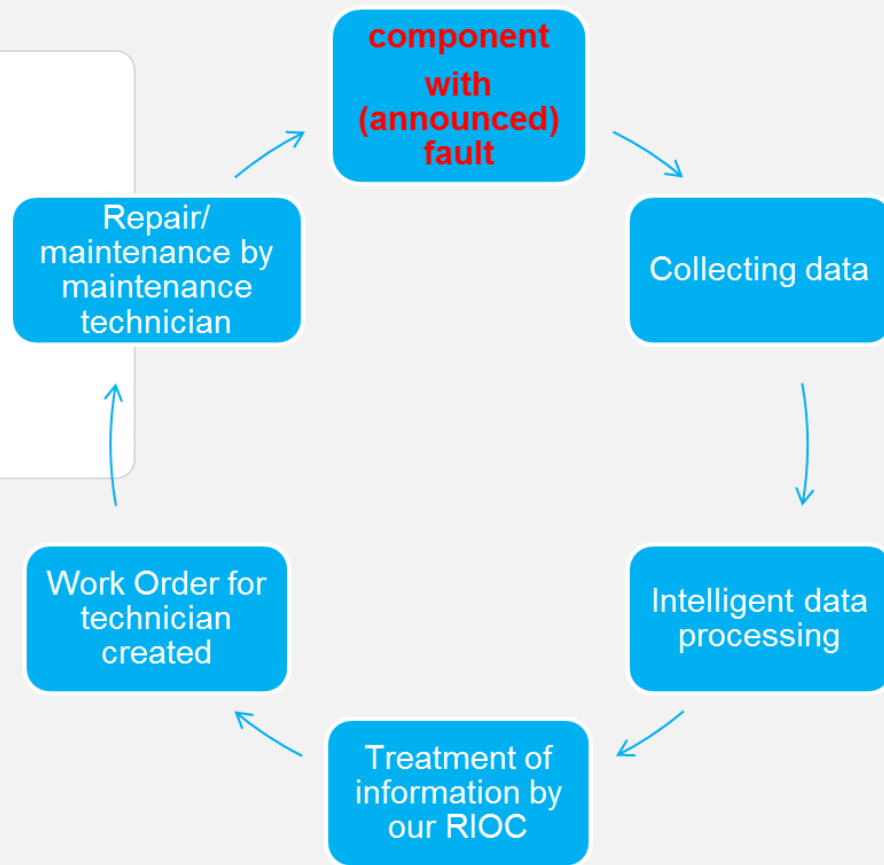
ETCS assets is one thing.

MAINTAINING

Them is another ...



Diagnostics are the key for continuous improvement ...



ETCS: The Asset Management view

Maintenance: forgotten in the specifications?

THE ROLE
of maintenance and
performance monitoring



Keep the installation functional and safe

During the whole system lifetime

ETCS BUILD
specifications were the
priority, not the ETCS
MAINTAIN specifications

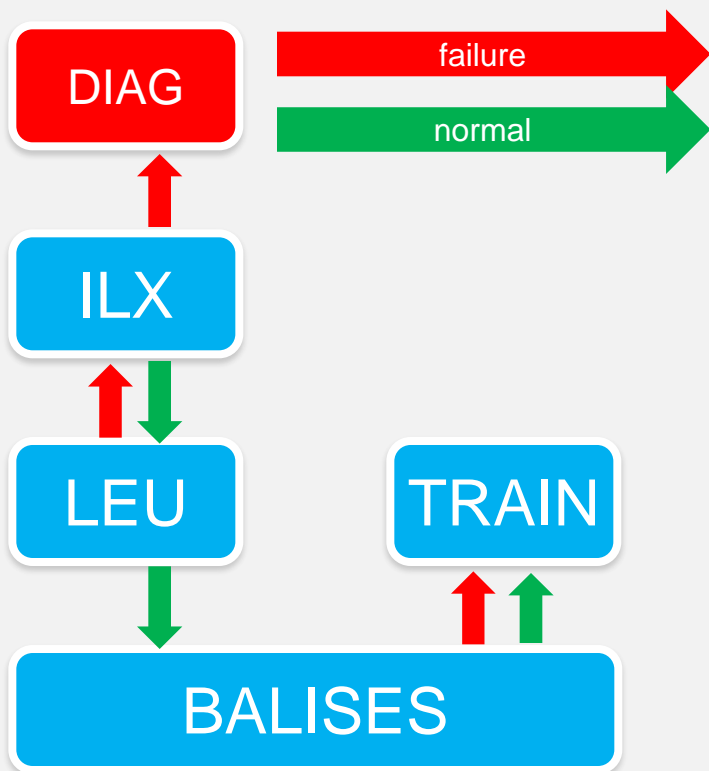



No standardization between suppliers in monitoring, maintenance tools (check/program/...)


Also the JRU (Juridical Recording Unit) was not designed with maintenance and monitoring in mind

ETCS: The Asset Management view

How to collect diagnose info of a TBL1+/ETCS L1 installation?



 Fixed diagnose systems can detect component or subsystem problems

 Not all components can be reached with a fixed diagnose system !

ETCS: The Asset Management view

How to collect diagnose info of an ETCS L1 installation?

OPTION 1

Manually

People in the track measure the correct functionality of the ETCS balises

Not acceptable:
it's a general policy to keep staff out of the tracks in service

OPTION 2

Automatically

Analyzing train data commercial rolling stock

A measurement train measures the correct functionality of the ETCS balise



ETCS: The Asset Management view

Why collect all this data ?



The theoretical balise MTBF is only a part of the story

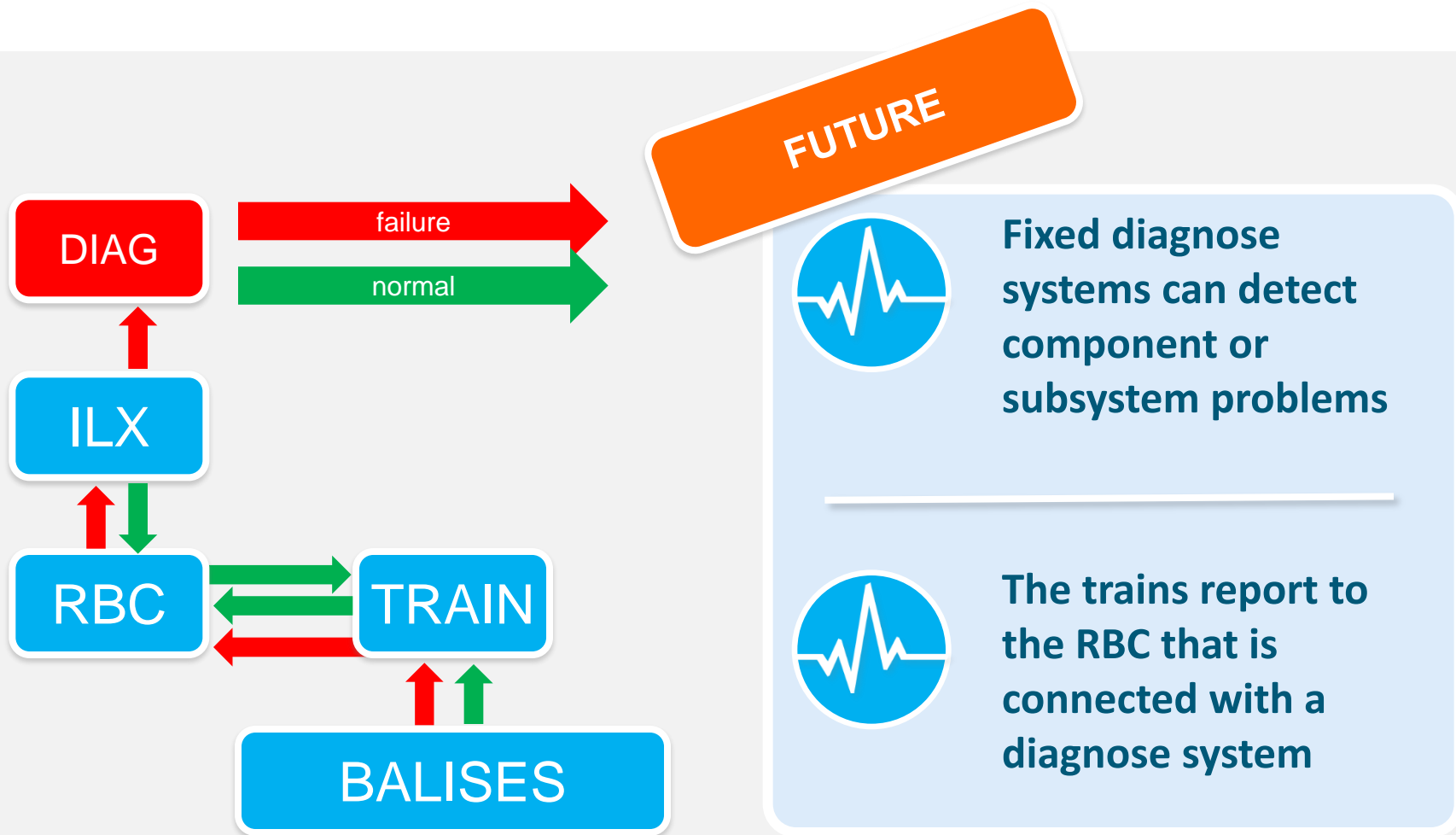
Balises damaged by external causes
(objects pending underneath trains,
cable theft, ...)

Balises are at the end of
a chain of elements



ETCS: The Asset Management view

How to collect diagnose info of an ETCS L2 installation?



ETCS: The Asset Management view

Conclusion



Standardized specifications for diagnostics in an ETCS installation



Commercial train data available for the railway infrastructure managers