



Strategy

InteGRail Vision

How to shape the European railway organisation of the future

Integration of information is key for further growth of railway transport volume. Decision makers will be able to make better decisions once they have the right information at hand about their own processes and about the processes of their partners in business. InteGRail is the project that developed an enabling technology to allow universal access to existing information systems, be it databases, monitoring systems or existing user applications. For this purpose InteGRail defined a standard approach for architecture and communication. Using this standard approach a number of example applications were developed. The definition of an appropriate integration platform based on Web Services information transport is the cornerstone of the system structure and the foundation for other applications.



All railways have the same basic targets. Beyond a safe railway, they are all working to minimise passenger and freight delays, maximise the capacity at which they can operate their networks, maximise the reliability of the infrastructure and rolling stock, and do all of these for minimum cost.

Many railways have improved their performance against these targets through a series of engineering and process improvements. But over time the level of improvement that can be achieved reaches a threshold beyond which further improvement by these means is minimal. Also, the separation of railways into Infrastructure Managers (IMs) and operating companies or Railway Undertakings (RUs) means that there is a limit to the improvement that can be achieved if IMs and RUs cannot work together effectively.

This is where InteGRail will make a difference. Sharing information between IMs and RUs allows the whole railway to be managed as a single system. That single system doesn't have to be restricted to only one country. InteGRail will let IMs and RUs across Europe act together as a single system.

Over many years, the railway has worked on the basis of finding problems and faults and fixing them. A more efficient railway needs a method for predicting the condition of its assets and then intervening to prevent them from failing. This is possible if data is collected continuously from the infrastructure and rolling stock; if that data is transformed and processed into coherent information; and if trends in that information are monitored and analysed so that assets can be maintained just in time. Again, InteGRail makes that possible by defining a common standard for the information and sharing it. That is its unique offering.

Therefore, we can now monitor the interaction between rolling stock and the infrastructure and translate the results from one area into predicted results for another. InteGRail is not a system but defines a set of standards and methods for information sharing and interpretation so that IMs and RUs can integrate their existing systems and suppliers to the railway industry can develop and market systems that will integrate. Integrating railway information through InteGRail will create a single view and allow the management of European railways as a single system. As a result, greater efficiency can be achieved within individual railways and across European railways. Better management of the rolling stock – infrastructure interaction will lead to greater reliability of those assets. In turn that leads to decreased maintenance costs and to improved punctuality. Reduced asset failure means that they are more available and so this leads to an increase in the usable capacity of the railway.

Also, InteGRail supports decision-making when a fault occurs, allowing traffic managers and operators to decide on the best course of action. Making the best decision leads to reduced delays. If recovery from a fault is made faster, trains can be timetabled closer together so again, the usable capacity of the railway can be increased.

On its own, InteGRail will not lead to greater efficiencies in the railway but it will supply the information to support better decisions. Applying this new decision-making capability with new processes will minimise passenger and freight delays; maximise the capacity at which we can operate the networks; maximise the reliability of the infrastructure and rolling stock; and do all of these for minimum cost.

Imagine a Railway Where...

- ❖ The condition, capability, capacity and availability of routes is visible to all operators
- ❖ Infrastructure maintenance, renewal and enhancement plans are available to all operators
- ❖ Operators can use tools to query and assess this information to optimise their bids for train paths
- ❖ And it doesn't matter which member country the operator is in
- ❖ An infrastructure manager can see the impact that a train has had on the infrastructure on another country
 - So decide whether to allow it onto their infrastructure
- ❖ A train operator can see the impact that a country's infrastructure has had on its train
- ❖ These results can be extrapolated so that the train-infrastructure impact can be predicted for the first time a train goes over a new route
- ❖ The health of a train is being constantly monitored
 - It doesn't matter whether it is operating in its home country
 - Using the information that modern trains are already equipped to provide from their diagnosis and monitoring systems
- ❖ Incipient faults can be identified
- ❖ The options for action can be identified by a decision support system; and operators, infrastructure managers and traffic managers can be guided on what to do.
 - It can be taken out of service
 - A "running repair" can be attempted at the next stop; operations control can know beforehand that a train will have a longer stop at a station due to urgent repairs
 - It can be scheduled for a full repair at its destination
- ❖ It doesn't matter whether it is in its home country

InteGRail will make all these things possible.

Partners of InteGRail:

UNIFE • Alstom Transport • AnsaldoBreda • Bombardier Transportation • Siemens Mobility • UIC • Trenitalia • D'Appolonia • TSB-FAV • DeltaRail • ATSF • CAF • Nortel Networks • Laboratori Guglielmo Marconi • FAR Systems • MER MEC • Italcertifer • ATOC • České dráhy • MAV • UNICONTROLS • Strukton Railinfra • Deuta-Werke • Heriot-Watt University • IMEC • OFFIS • Televic • Seebyte • Kontron • University of Chile • INRETS • Wireless Future • University of Birmingham • ADiF • RFF • ARGE Corridor X • Network Rail • ProRail • SNCF

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