

ERTMS DEPLOYMENT IN DENMARK

ERTMS DEPLOYMENT IN THE ENTIRE NATIONAL DANISH RAILWAY NETWORK



Banedanmark, the state-owned rail network infrastructure manager in Denmark has committed to an ambitious and radical planned upgrade of its total main line network. In a first ever decision by a national Infrastructure Manager to modernise its total network (currently amounting to more than 3245 route-km, 307 stations and 750 level crossings) the vision is to see this modernization completed by around 2024. This decision was facilitated by the Danish Parliament in January 2009.

ERTMS is the answer to the signalling challenge in Denmark?

Faced with huge challenges from many different systems, all of them very old, a situation of insufficient capacity and a lack of knowledgeable staff to maintain the existing systems topped with a monopolistic supply situation, the decision to install the state of the art European signalling system ERTMS Level 2, made in January 2012, makes total sense. The decision to totally renew/replace the legacy, life expired and obsolete signalling systems deployed in Danish soil, some of them dating back to the 1930s, and for which it has become progressively more difficult and expensive to find and acquire spares and to support and to maintain the Danish ATC, was based on the urgent need to overcome network signalling problems which accounted for more than 50% of train delays. Indeed, with a system considered to life-expire by 2020, the urgency became evident and the choice was made to adopt a global, mature and interoperable, world-class system.

How can ERTMS contribute to improve the existing system?

The decision will see a simplification of the national network, which will lead to a reduction of life cycle costs, maintenance costs, reduction of staff and provide the opportunity to simplify and update the national operating rules and optimise the national control organisation.

New interlockings will be introduced supported by the GSM-R technology thus allowing all old relay interlocking s and the analogue radio systems to be replaced.

What are the benefits to implement ERTMS in the full network?

The introduction of ERTMS will facilitate the connectivity between major cities and capitals in Denmark. It will offer seamless travel within the EU. With ERTMS, the Danish network will be able to grasp the advantage of the inherent features of ERTMS, like increased and homogenous safety levels, allow high speed train movements, increased network capacity, improved punctuality as well as offering the basis for better information to passengers on the performance of the network and overall raising the attractiveness of rail transport. Overall, benefits include the adoption of EU standards, fewer safety standards to comply with, fewer traffic management sites, fewer interfaces and less system integration concerns apart from, of course, achievable economies of scale and, in the tender phase, greater competition.



How the implementation will be executed?

In an extended and thorough process, Banedanmark reviewed all options in detail and compared ERTMS offers/solutions from 6 UNISIG-member suppliers before reaching a decision with two consortia - one to implement the Eastern zone – Zealand, GFyn and Lolland-Falster - amounting to 770 route-km and another in the Western zone in Jutland amounting to 1200 route-km. Both contracts will include a condition of an early test deployment of the offered solutions with both solutions demonstrating the same equipment, the same interfaces and the same workflows and ultimately a requirement of continuous engagement for 25 years of maintenance support.

A separate contract has been placed in July 2012 for the upgrade of all rolling stock amounting to more than 700 vehicles which will be led by an onboard Retrofit design contract to assure First in Class designs are fit for purpose.

The Banedanmark decision amounts to an investment of more than €3.3Bn over a period of 12 years including all infrastructure works, project management and the onboard elements.

The major benefits will see an 80% reduction in train related delays, higher train speeds and a reduction in travel times, capacity improvement and an increased (and from the operators viewpoint a single high) safety level regime applied to the whole network with better traffic information and finally a possible 25% reduction in maintenance costs.

Banedanmark set out to encourage more and open dialog with all potential suppliers, learning lessons from wherever possible from existing ERTMS/ETCS adopters, deep market research and introducing the concept of a dedicated internal team to drive the programme. The result of this early engagement was the receipt of better quality final bid submissions and finally the acknowledgement that all the old accumulated so-called best practices and old long held tenets of behaviour could be set aside.

SUPPLIERS

ALSTOM



BOMBARDIER



SIEMENS

THALES