

BEACON

Leasing Company's Experience Report about ETCS Upgrades

ERTMS Conference 2024, Valenciennes

Experience Report for typical Lessor's Upgrade cases ERTMS => ETCS BL3

Agenda:

- **5 years ago (ERTMS Conference 2019)**
 - Looking back on the experience status at that time & assumptions (hopes?) for the future
 - At that time: picking up three typical example cases of Locomotive Types & Variants
- **5 years later (ERTMS Conference 2024)**
 - What happened in reality? Have the assumptions (and wishes) been fulfilled, so far?
 - Has there been a significant progress in the concrete investment forecasts for ETCS BL3?
 - Do we see the transfer especially of Non-TSI Locomotives to ETCS BL3 ensured?
- **Are the Upgrade scenarios for ETCS BL3 “unique investment cases” to be considered?**
- **Do we see the Sector being prepared for what's ahead of us?**

5 years ago - ERTMS Conference 2019

For the ERTMS Conference 2019, I picked up 3 significant example areas for my “Experience Report”:

1. MS-Locomotives ES64F4 (“Non-TSI-Locomotive”)

- 3 investments into ETCS up to 2.3.0d already executed



2. Locomotives ES64U2 (“Non-TSI-Locomotives”)

- 2 investments into ETCS up to 2.3.0d already executed



3. Vectron MS as a TSI based Platform

- delivered with ETCS 2.3.0d
- concrete Upgrade scenarios for specific batches in place



At that time, our expectations (hopes?) were...



1. ES64F4

“Let’s use the opportunities deriving from subsidised Prototyping”

- Executing a 90% subsidized **Prototyping Project** (with 2 Prototypes) over the coming 4-5 years
- taking the opportunity **to pre-clarify issues** for a Non-TSI-Locomotive Type within the authorization
- sharpen the scope of work (technically / authorization) and by that **sharpen the scope of investment**



2. ES64U2

“Let’s join forces with the largest owner of fleets within the U2 family”

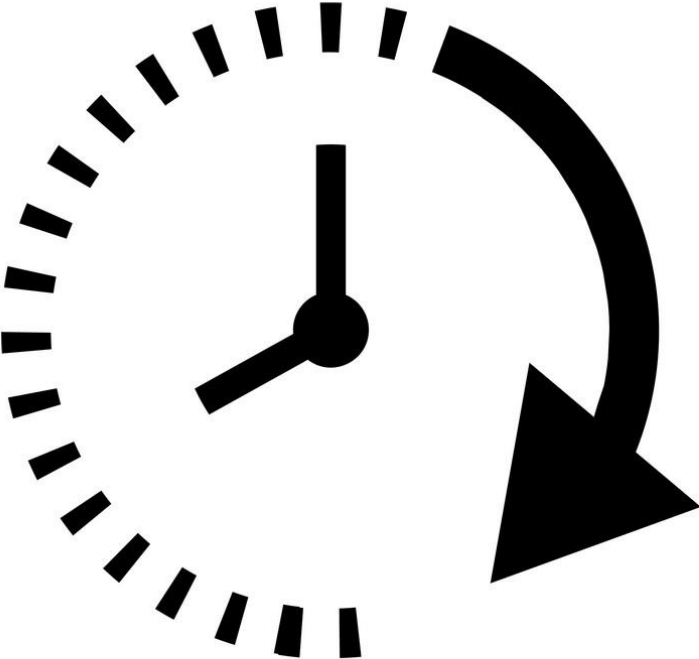


3. Vectron-Platform

“Let’s use the opportunities of a TSI-based Platform with regards to ‘off-the shelf-solutions’ BL3”



5 years later...





Has there been a significant progress in the concrete investment forecasts for ETCS BL3?



Do we see an economically feasible transfer especially of Non-TSI Assets to ETCS BL3 ensured?

1. INFORMATION ON THE ACTION	
Grant Agreement N°	INEA/CBF/TRAN/M2017/1489106
Action number	2017-NL-TM-0046-W
Action title	ERTMS Baseline 3 upgrade on-board units (OBU's) Rhine-Alpine Freight locomotives
PCI (for energy and synergy only)	

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1. ES64F4

- Close to the end of the Prototype, the **scope for the physical Upgrade to BL3 remains “incomplete”**
- This even after more than 4 years of Prototyping and intensive debates among Stakeholders
- As a result: so far, the OEM is still working on a non-binding first offer for the serial Upgrade
- **There will be significant limitations in the future area of use (e.g. loss of area of use Italy)!**



Has there been a significant progress in the concrete investment forecasts for ETCS BL3?



Do we see an economically feasible transfer especially of Non-TSI Assets to ETCS BL3 ensured?



2. ES64U2

- no progress...



Has there been a significant progress in the concrete investment forecasts for ETCS BL3?

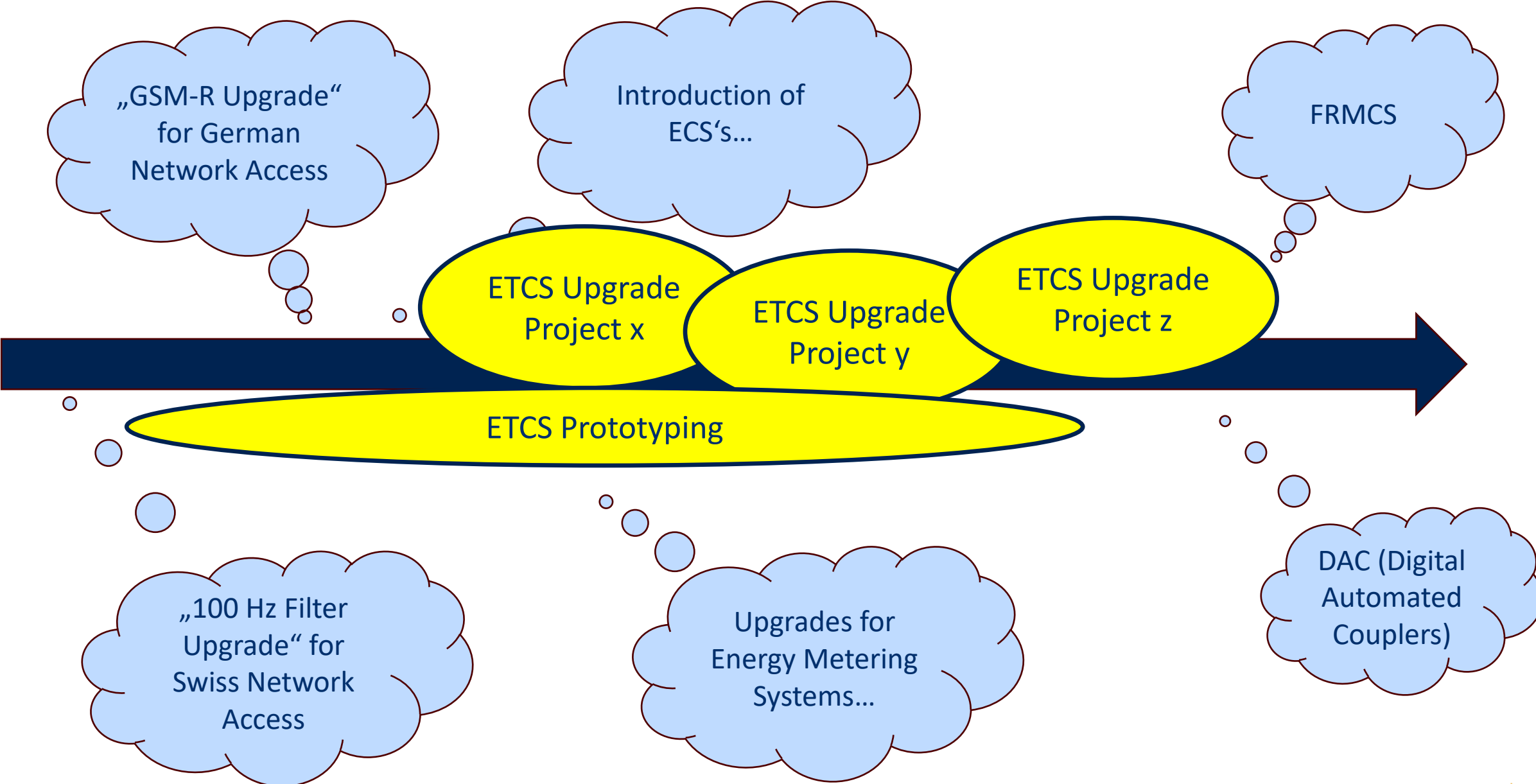


3. Vectron-Platform

- Scope of concrete Upgrades still “floating” (among others due to introduction of ESC’s)
- **Bilateral agreements** between IM’s for **border stations** transferred into the “**ESC regulatory framework**” ...
- ...with the result, that existing solutions e.g. at the border CH – IT around **Domodossola** are at risk
- This increases the risk of preliminary limitations in the areas of use and resulting **investment uncertainties!**



Are the Upgrade scenarios for ETCS BL3 “unique investment cases” to be considered?



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The ES64F4-Prototype example case shows: there can be many potential cases of vice-versa-impacts with other (national Network Access) Upgrades...

- “100 Hz Upgrade” for the Network Access to Switzerland
- “GSM-R Upgrade” for the Network Access to Germany

In parallel to...

- “ETCS BL3.4 Prototype”



Not only the **scope** of the “GSM-R Upgrade” was **overlapping** with the “ETCS BL3.4 Prototype” Project.

Same applied for the **deadlines** (e.g. “GSM-R” usually to be installed until end of 2022) for the named Projects

As a result, Engineering and Authorization **scope had to be retroactively** (after the start of the Prototypes) **“carved out”** from the original Engineering and Authorization paths.

This created additional challenges to all involved Stakeholders (including the Authorities) **within an environment of limited resources!**

Do we see the Sector being prepared for what's ahead of us? (1)

In addition to the bottlenecks of available resources on the OEM side, the Certified Bodies, the Authorities, etc., we also see during the execution of any kind of Upgrade Projects...:

- **Workshops** need to be **qualified & audited** for each and single Upgrade Project (Specialists!)
- The very formal APM Process creates **additional downtimes** after the finalization of the Upgrades
- Under the current deployment regimes, there are almost **no opportunities to “bundle” Upgrade activities** to create an economic framework



Every single day of downtime counts for us as Lessors as well as for our Customers!

- The more **fragmented** and **parallelized** Upgrades need to be rolled-out, the more **Traction availability** we **take away** from the Market!



We need Industry Standards and an industrial deployment approach which can be deployed and rolled-out in well-defined “waves” by using “natural downtimes” of Rolling Stock Assets (e.g. Major Overhauls)

Do we see the Sector being prepared for what's ahead of us? (2)

On top of that, we are facing as of today already a timeline where additional innovations steps shall follow...:

- **FRMCS** will most likely create specific requirements when it comes to the integration into (not only Non-TSI-) Locomotives!
- The **Digital Automatic Coupler (DAC)** is heavily debated within the Sector – and will require Engineering & Authorization resources on high level!
- Experience shows that further Upgrade requests for e.g. National Network Access issues will follow as well...



We, the Leasing Companies, are typically frontrunners for Cross Border Operations and investments into complex Assets!

We are ready to share our experience – let's learn together from the past and avoid stepping into issues which have turned-out to be pitfalls...



AERRL's position on ERTMS deployment

AERRL firmly believes in the objective of a single European railway area, enabled by ERTMS deployment.

- The target should be one core system version for a **realistic, Europe-wide coordinated** roll out, with **long-term maturity**.
- **Innovations that improve the sector's competitiveness** (e.g.: ATO) are encouraged for inclusion in future TSIs, but **implementation on rolling stock** should be on a **voluntary and economically sound basis**.
- The final goal of AERRL and its members is the **efficient, economic, reliable, safe, and seamless transport of goods and passengers across Europe**.





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