# Train paths

## Minimum criteria required

11.10.2023 | Frankfurt am Main

# Border stations often provide less capacity then required
# The available capacity has to be used perfectly

Border stations were often designed in a time when public railway companies were monopolists. Time has changed: many RUs cooperate in different constellations and sometime need a lot more time for their border procedures. In order to offer RUs reliable timetables and meanwhile provide signallers and dispatchers with all relevant pieces of information we launched

**minimum criteria required when ordering train paths.**


# Minimum criteria required when ordering train paths improves the quality of international trains paths

RUs are asked to provide several pieces of information about the trains they want to run:
– Type of loco
– Length and weight of train
– Frequency of transport
– …

Some **additional pieces of information** allow us to create more specific and better fitting timetables by using the resources in border stations in an optimal way. This also **improves the border stations operational quality**:
– Usage of an international train number instead of changing numbers
– Jobs to be performed in the border station: brake check? Change of loco? Change of driver?
– Name of cooperating RU
– …

# These required pieces of information are part of the border section‘s guidelines in the network statement

| Örtliche Grenzvereinbarung zwischen DB Netz AG - PKP PLK S.A., für die Grenzbetriebsstrecke Frankfurt (Oder) – Rzepin - Auszug für EVU | 302.2204 Z01 Seite 33 |
|---|---|

| b) Dwustronne uzgodnienia między przewoźnikami | b) Bilaterale Abstimmungen der Eisenbahnverkehrsunternehmen |
|---|---|
| W okresie poprzedzającym złożenie wniosku o przydzielenie międzynarodowej trasy pociągu należy przeprowadzić koordynację z udziałem wszystkich zaangażowanych partnerów w celu harmonizacji wniosku o przydzielenie trasy w odniesieniu do następujących punktów:<br>- Obaj przewoźnicy są zobowiązani do złożenia wniosków o przydzielanie trasy odpowiednio w DB Netz AG i PKP PLK S.A. niezwłocznie po sobie. Okres pomiędzy złożeniem obu wniosków o przydzielanie trasy w ramach IRJ nie może przekraczać 24 godzin. | Im Vorfeld der Anmeldung von Trassen für internationale Verkehre ist, unter Einbindung aller ggf. beteiligten Partner, eine Abstimmung zur Harmonisierung der Trassenanfrage hinsichtlich folgender Punkte vorzunehmen:<br>- Die Trassenanmeldungen der jeweiligen EVU sind entsprechend bei der DB Netz AG und der PKP PLK S.A. in einem unmittelbaren zeitlichen Zusammenhang vorzunehmen. Für Trassen im Gelegenheitsverkehr sind beide Abschnitte innerhalb eines Zeitraums von 24 Stunden zu bestellen. |
| - Wnioski o przydzielanie trasy złożone u obu zarządzów infrastruktury muszą być zgodne pod względem charakterystyki (parametrów) pociągu i żądań dotyczących czasu przewozu. | - Die Trassenanmeldungen müssen bei beiden Infrastrukturbetreibern in Zugcharakteristik und Verkehrszeitregelung übereinstimmen. |
| **c) Minimalne wymagania dotyczące zamawiania tras:**<br>Wnioski o przydzielanie tras są wiarygodne, jeśli zawierają następujące informacje: | **c) Mindestanforderungen an die Trassenanmeldung:**<br>Trassenanmeldungen sind plausibel, wenn sie folgende Angaben enthalten: |
| - jednoznaczne oznaczenie stacji początkowej i stacji końcowej w danym kraju. | - Eindeutige Benennung der Start- und Zielbetriebsstelle im jeweiligen Land. |
| - Jednoznaczne oznaczenie stacji zmianu systemu. | - Eindeutige Benennung der zu befahrenden Systemwechselbahnhöfe. |
| - Jednoznaczne oznaczenie przewoźnika, który złożył wniosek o przydzielanie trasy w drugim kraju. | - Eindeutige Benennung des EVU, welches im jeweils anderen Land die Trassenanmeldung durchführt. |
| - Jednoznaczne wskazanie wymaganego czasu postoju wraz z odpowiednią technologią eksploatacji (np. zmiana lokomotywy, zmiana drużyny, postój tylko dla przełączania systemów kontroli jazdy) na stacjach zmianu systemu.<br>- Jednoznaczne oznaczenie w formie numeru pociągu wszelkich jazd poprzedzających lub dalszej jazdy w przypadku pociągów kończących lub rozpoczynających bieg na stacji Frankfurt (Oder) Oderbrücke lub w przypadku doprowadzania lokomotyw związanych z realizacją danego przewozu. | - Eindeutige Angabe der benötigten Haltezeit und der entsprechenden Betriebstechnologie (Beispiel Lokwechsel, Personalwechsel, Transition) an den Systemwechselbahnhöfen.<br>- Eindeutige Bezeichnung in Form der Zugnummer etwaiger Vor- und Nachleistungen bei beginnenden und endenden Zügen oder Zuführungen von Triebfahrzeugen, die im Zusammenhang mit der Durchführung der Zugfahrt stehen. |

RUs are asked to coordinate the train‘s details with the cooperating RU before the path allocation process with the IMs is started.

Path requestes must consist of identical circumstances (such as date of service)

Minimum required pieces of information

Information about procedures to be carried out in the border station

DB NETZE

# Language barrier in railways

## How about a common language?

11.10.2023 | Frankfurt am Main

# The ongoing revision of the train driver's directive is also dealing with a common European operational language

**CER/ETF Joint recommandation**
**Train Drivers Directive**
Brussels, March 2023

CER

EUROPEAN TRANSPORT WORKERS' FEDERATION

## Communication

Safe train operation on a country's network can only work if communication between drivers and traffic controllers, emergency services as well as other railway staff, works flawlessly, particularly in disrupted/emergency situations. The railway communication arrangements in place already ensure this essential requirement. The majority of passenger and freight transport, as well as maintenance and other activities, are undertaken at national level. Under these conditions, introducing a single or an additional common European language (i.e. English) would not bring any added value, but would instead constitute a massive disadvantage for the railway sector competing with other modes of transport. The switch to a single or an additional common language would affect train drivers, as well as all professional job profiles in railway undertakings and infrastructure managers, particularly those responsible for safety-related activities.

The introduction of such an additional hurdle requires a massive (re-)training of staff as well as a significant increase of training for service providers in the railway sector, and further hindering a shift from road to rail.

Additionally, it cannot be ensured that the existing safety level can be maintained. We remind that a multiple language regime at border stations has been working successfully for decades.

For the reasons outlined above, we refer back to our joint statement of December 2022, where the social partners agreed on a European language regime where we support a general requirement of language level "B1" for all traffic. When it comes to exemptions, ETF states that the minimum of a B1 level shall be required on the entire European railway network whereas CER favours exemptions for countries with more than one official EU language as well as for border sections.

In order to define a future target system for railway communication, which takes into account all communications aspects and relations comprehensively, we recommend that a scientific study which looks into the communication needs of the railway sector incl. field tests/ pilots is carried out.

So far DB Netz militates against the implementation of a common European operational language.

What triggers us is:

- Education and maintenance of language knowledge
- Preparation of bilingual network statements and guidelines
- Lack of staff
- Higher risks

# GSM-R Translator “KITT”

## Current status of project

11.10.2023 | DB Netz AG | Marvin Christ

# Overcoming language barriers by using artificial intelligence

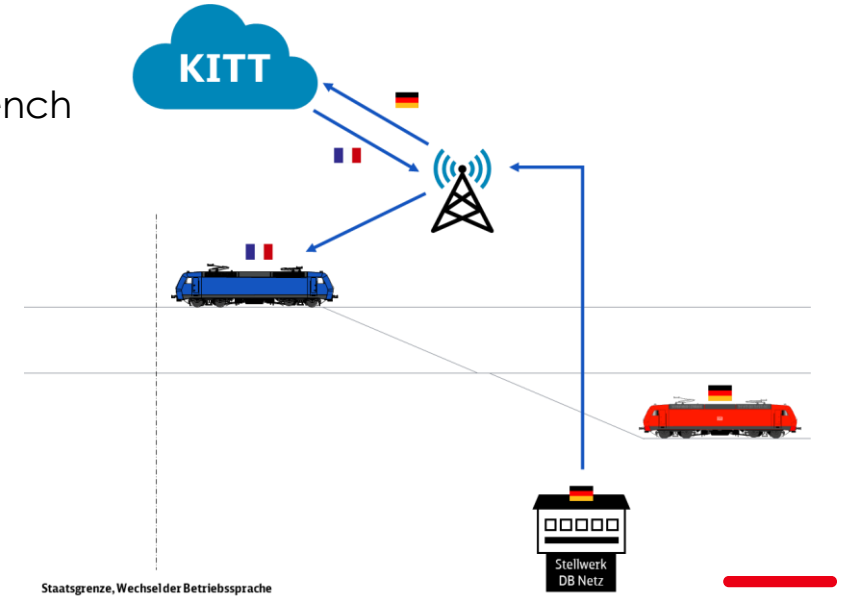
**Interoperability is powered by technical progress. By now this progress is focusing on multisystem locomotives and equipment as ETCS. There still is a lack of driver supporting features to elevate their personal interoperability.**

**The language barrier complicates operations in border stations. By releasing an automatic translation feature to GSM-R - "KITT" - we are looking forward to simplify effectively the on-site communication between driver and signaler.**

**Situation**

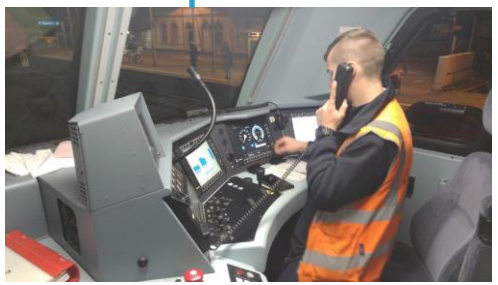
- A prototype of "KITT" is available in GSM-R and subject to intensive tests currently
- "KITT" has been developed to a very high standard so far – but for German we had more input from the colleagues at Deutsche Bahn and from German RUs
- The translation system "KITT" works best if equipped on both sides of the border
- This is why we are looking for French native speakers to improve KITT regarding its French

*Click here to see a demonstration and explanation of KITT*



# “KITT” – the “invisible” GSM-R cross border interpreter allows natural communication in the respective native languages

Dialing KITT via particular GSM-R phone number. No extra devices are required.



NLU: Secure translation of safety critical formulations.

**Natural Language Understanding**

**Source Language**

**Target Language**

**Speech2Text**

Driver uses on-board GSM-R unit connected to customised speech recognition models (why “Heißläufer" is not transcribed as “Eisläufer”).

**Machine Translation**

Translation models specifically trained for railway language.

**Text2Speech**

Signaler receives voice output in his mother tongue

# Testing KITT-Prototype to prepare a language level derogation

**Circumstances:**

KITT is available in the German GSM-R Network. Both signaller and driver hear original message (live) and the translation (afterwards). This allows to validate the translation immediately.

**Aim:**

+ Test with many different people
+ Improvement of KITT
+ Transmission of 10.000 messages
+ Finalization of risk assessment

**Participants**:

+ Signaller DB Netz
+ Driver different RU
+ Supervisor / Interpreter


**Next steps**:

+ Evaluation of tests, finalization CSM-RA and call for language derogation
+ Technical Maturity of KITT and IT-Security
+ Development of future business- and maintenance concept
+ Development of additional language pairs

# Development of KITT