



CULTURAL RAPPROCHEMENT THE EUROPEAN DIMENSION

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Simon Fletcher (*MIRO*) - Senior Operations and Safety Advisor, UIC

1. Introduction

The liberalisation of the rail market in Europe brings with it its own set of unique benefits and challenges. On the one hand there is a much easier flow of traffic across national borders that are now largely without regular frontier controls but on the other hand there are now very nearly 20 different languages in use within the railway sector in Europe. Even in circumstances where countries use the same language, there are nevertheless local variations to contend with!

One thing is clear, the rail industry needs to exploit the removal of these administrative barriers and grasp the opportunity to speed up traffic flows across Europe.

Bringing together the cultural and philosophical approaches of the people within the rail companies using each of these languages is also a significant challenge. These cultures and philosophies have been developed over the last 100+ years and are clearly not going to be drastically influenced overnight!

This paper outlines how the rail industry has already witnessed a significant rapprochement in this area and offers some options to enable a cultural step change.



2. Which Language?

There are commentators who will offer to suggest that the rail industry should take a leaf out of the airline industry's book and promote the use of only one language. Well why not? It has worked very well for them but then you must examine why they have done that.

Within the railways we have a signalling system, either on the lineside or in the driving cab, to provide a safe distance between trains.

Even though air traffic controllers use flight paths, the least engineering-minded amongst you will appreciate that you cannot exactly locate signals alongside these paths! So, the airlines use voice as the method for regulating the distance between aircraft. Alright, I know that it's a bit more sophisticated than that, with radar, GPS etc., but the instruction to the pilot to fly at a certain altitude, or to manoeuvre is done by voice and through a disciplined communications protocol. Voice communication is therefore absolutely essential to the safety of the skies all around the world.

Anyway, even if we were to agree that having a single language would be sensible for the European rail industry, which one of the 19 in Europe would we choose?

Effectively we need to concern ourselves less with pondering the rights or wrongs of one language or another and do what we can to ensure that these new traffic flow opportunities are operated safely, effectively and for the maximum return. Perhaps we should simply accept that there are different cultures and indeed different languages and find ways to overcome these hurdles?

The advantage of railways even with our multitude of different signalling systems is that all the time the signals are showing 'proceed aspects', trains will keep running. Unlike the airline industry, we generally only need speech communication when things are not running correctly; during an incident the driver may well be



required to speak with the signaller/controller for authority to operate in degraded mode.

Because verbal communication is far less frequent than the airlines, having a single language could well be argued as being an expensive luxury. Nevertheless, we must recognise that it becomes even more important, when called upon to do so, for the parties involved to communicate efficiently, especially as such communication often involves system degradation and fewer safeguards.

Effective communication is key to narrowing the cultural divide and so it can be said that communications in the rail sector have never played a more important role than they do today in ensuring the safe operation of the railways!

3. Bridging that gap

One cultural change that can be brought about and which would provide significant and long-lasting improvements in standards is the use of structured, disciplined communication. It should become the norm, the non-use of which would be seen as being just as unacceptable as drinking and driving.

The English have an excellent expression used often in business terms, “all singing from the same hymn sheet”. This is of course analogous to a choir singing in harmony because they all have the same version of the same music but it neatly transfers to the world of business and therefore to railways.

When interpreted it means that one of the most important aspects in any stream of business is to work in harmony, ensure that there are clear terms of reference (or specification) for the work and that everyone understands the parameters within which the business or the activity is to be conducted. Language is central to the discharge of these two principals and is something that the UIC recognised as being very important some considerable time ago.



One could be forgiven for thinking that because all trains run on tracks and are controlled by signalling systems, that the terminology used would also be the same. Despite these very broad similarities, it is of course not the case. In order to ensure that the railway community was provided with something akin to a “common hymn book” and bearing in mind the multitude of languages in use, the UIC created a document called the UIC Lexique. This contains an agreed translation of a vast number of railway expressions and terms into many of the languages used by our members. Naturally, we were not able to translate this document into all the languages but we certainly encourage the use of these terms and expressions as a solid foundation for co-operation between partner companies. With the development of the European Rail Agency we are working with the EC to promote adoption of the Lexique by them.

4. Case Study

Fourteen years ago I started to work on the fledgling project to operate trains between London, Paris and Brussels through the Channel Tunnel. This is of course the Eurostar service which celebrates its 10th operational year this year.

It was a very innovative project and ground breaking in more ways than one! The railways of Europe have of course been ‘working over’ borders into neighbouring countries for years, but often this has been limited to only running over short distances, or the locomotive and/or the driver were changed at the border, or, as in the case of SNCF and SNCB, the communications problems were largely overcome by the use of a language common to the drivers of both countries.

Eurostar wanted to operate seamless journeys, without the need to change drivers at the borders and avoiding costly delays if the relieving crew were delayed in getting to the border.



As it was agreed that the signallers and other ground staff would speak their own language, it meant that the drivers and the traincrew were required to speak a second language. It was agreed that this would be either French or English and so the selection process started.

Bearing in mind we were starting with a blank sheet of paper, certainly in terms of linguistic requirements, it was quickly discovered that trying to find train drivers who had the ability to speak a second language was not going to be easy. We had to make sure that we were not being over ambitious in this area but we still had to ensure that when it came to an incident the driver would be able to effectively communicate in the language of the signaller he was dealing with. A radio system was being developed that was capable of sending and receiving predetermined telegram messages but was soon discovered to be very inflexible. Something else had to be found.

In the end the solution was very simple; based on an analysis of the likeliest situations in which a driver could find himself, a communications protocol was designed that was based around a limited number of critical messages that the driver was expected to know by heart in the other language - things such as 'stop', 'emergency' etc. This was supported by mandating the use of the phonetic alphabet and adopting a protocol for saying numbers individually rather than as a whole. For example, the number one hundred and twenty five would be said as one, two, five.

Also in this communications tool box was a suite of pre-printed forms that the driver and the signaller would complete as they went through the procedure that was being followed. This acted not only as a linguistic guide to the driver (and the signaller) but also as an aide-memoire of the procedure being followed, as well as being a record of what was said and what was required to be done as a result of the communication.

Drivers and signallers both received training in this at joint sessions using the Eurostar simulators in London and Lille.



Even in 1994 this whole approach to communications discipline was seen by some people (outside Eurostar) as being a step too far but is, nevertheless still in use today and has stood the test of the first 10 years of service.

In France, SNCF, who already used forms for certain situations, recognised the value of the Eurostar approach and adopted the pre-printed forms for domestic services running over their high speed lines.

In the UK, outside of the Eurostar circle, the value of the forms, or even the idea of scripts for signallers to follow to ensure communications consistency, took a little while longer to be realised.

Using the experience of the signallers dealing with the Eurostar drivers, it was realised that when frontline staff speak to each other using a defined protocol, the risk of incidents reduces significantly, performance is improved and costs are reduced as incidents are avoided.

Some research was conducted and it was discovered that as many as 90% of accidents and incidents involved some sort of miscommunications. Indeed, as many as 5% of SPADs (Signals Passed At Danger) in the UK were being caused by miscommunication and at least 65% of worksite irregularities could have been prevented if accurate and clear communications were in place.

Much of this is however, highly subjective and very difficult to quantify. This is partly as a function of the fact that the role communications plays in incidents and accidents is often underestimated simply because it is rarely the sole cause; there is always another factor involved and after all, communication is simply a way of achieving something else such as making a safety critical decision; implementing a safe system of work or managing last minute changes to agreed plans.

Having said that, experienced operators will not find it difficult to see the potential scale of the safety and business risk. For example, a derailment arising

from a miscommunication between a signaller and a person responsible for a worksite being handed back after engineering work has taken place could result in:

- Service disruption over a wide area
- Costly call out of incident response teams
- Breakdown and recovery
- Repair to infrastructure
- Investigations, including managers time to investigate incident, time of investigation panel and time taken to review incident and recommendations

It could be said that there is the potential for **“Careless talk to cost a lot of money, maybe even lives”**.

5. What else is being done?

The European Commission’s vision of interoperability of the railway system is backed up by a number of directives that require the creation of technical standards for interoperability (TSIs). There are, or will be, a number of these TSIs covering things such as rolling stock and signalling. There is also one that covers Traffic Management and Operations. Known as the Operations TSI, this document essentially sets out the high level principles of the perceived ‘target operating system’ of the future rail network in Europe.

Absolutely central to the success of this very long term project is for trains to be able to pass between state boundaries without having to stop to change locomotives or for the completion of tedious train integrity checking, or to have to change drivers. This means that there must be the ability for staff, mainly drivers, to be able to go further and further afield and so the need for more and more drivers to be able to speak more than one language and to understand the cultures in the ‘other’ country becomes vital.

The problems discovered by Eurostar will still be evident and the average train drivers will still find it difficult to cope with a second, or even more languages. We



have already accepted that having a single operating language is thought to be uneconomical, at least in the near future.

That doesn't mean that we sit back and put the whole question into the 'too difficult basket'. The operations TSI has accepted that communications in a safety critical situation is absolutely essential and has established the outlines of a communications protocol.

The UIC is also acutely aware that developing communications skills is absolutely essential and is supporting all the industry initiatives to develop and deliver tools to facilitate safety critical communications. These will include improving our understanding of the risks associated with communications, the human factors issues connected with communicating in a language other than the 'mother tongue' and the development of assessment tools.

This aspiration is enshrined in the UIC Safety Objectives 2004/05 which are incorporated into the UIC Safety Report 2003 available on our website.

6. Industry Commitment

Introduction of a communications protocol will be a significant step change and will support a definitive and long-lasting rapprochement of the differing cultures. This can however only be achieved by working together.

It will be very appropriate to develop guidelines that will lead to the creation of medium - long term objectives from which will emerge a culture change framework. Such guidelines could include:

- Careful selection of new recruits into operational positions. Where they are required to communicate safety critical information this will ensure that only those people who can demonstrate an aptitude for communicating clearly and concisely are selected.



- ❑ Delivery of regular joint safety critical communications forums involving staff from Railway Undertakings and Infrastructure Managers (signallers, drivers, controllers, trackside staff, plant operators, station staff and other relevant members of the workforce), with the aim of challenging poor attitudes towards communications and improving communications skills across all the disciplines.
- ❑ Evaluation of operational training programmes to identify improvements that could be made to ensure that staff understand the importance of communications and the risks associated with not communicating effectively and have opportunity, through techniques such as role-play, to practice using the protocols in a training environment.
- ❑ Implementing the monitoring and assessment of safety critical communications. In addition there should be initiatives to identify joint performance indicators.
- ❑ Development of supporting tools such as forms, scripts or checklists to encourage the setting and constant use of consistent standards.
- ❑ Ensuring that the importance of safety critical communications and the risks associated with poor standards are fully understood from the boardroom to the frontline, such that it is given due recognition at safety meetings, as part of investment in safety and during activities such as safety tours.
- ❑ Developing campaigns to raise awareness of safety critical communications so that all staff understand its importance, what standards are expected of them and the consequences of non-compliance.
- ❑ Ensuring that the communications hardware is fit for purpose and supplied to support key communications activities.
- ❑ Ensure that investigation processes are robust so that the role communication has played in rail incidents is accurately and consistently identified and actions are taken to prevent re-occurrence.

7. A culture change model

Building on the guidelines discussed above, it is possible to establish an outline model for the creation of progressive cultural rapprochement. This comprises of key elements that together will improve communications. Clearly, there would need to be further detail built into this framework to suit local objectives and action plans but can broadly be expressed as:

Element	Outline
Selection	<i>identifying the right people with the appropriate potential during recruitment</i>
Competence	<i>providing the correct level of training so as to attain appropriate knowledge and skills and ensure opportunities for updating so that skills can be retained</i>
Assurance	<i>ensuring systems are in place that assess and monitor the standard of communications</i>
Leadership	<i>setting an example from boardroom to frontline so that everyone is clear about the standards that are expected and their roles and responsibilities</i>
Awareness	<i>ensure that an awareness programme exists to ensure all the key people are aware of the initiatives being undertaken</i>
Rules and Protocols	<i>providing the tools to ensure that communications protocols and associated rules that are fit for purpose and which encourage structured communications including forms, scripts, reminders and checklists, as appropriate that support real-time communications</i>
Equipment	<i>providing the appropriate equipment that supports effective communications</i>
Investigation	<i>ensuring that follow up and incident investigation processes accurately identify the frequency and nature of communications risks and thus enable effective targeting of the key issues.</i>

Working with key industry partners in Europe, the UIC is committed to playing an active role in the progressive improvement of frontline operational communications



and work has recently been endorsed to begin to model potential tools for use in assessing the competence of staff, especially drivers and signallers.

Based on this development work the planned outcome would be:

- Identify and promote the sharing and adoption of assessment tools and techniques
- Identify and promote the need for research into the other areas of the cultural model
- Consider the creation of good practice guidance relating to communications issues and to make recommendations as to their development
- Work closely with the European Rail Agency in respect to the overall risks associated with miscommunication
- Monitor inputs to the UIC Safety Database to establish if any trends are emerging and to ensure future development work on safety critical communications takes these risks into account.
- Ensure that with the implementation of GSM-R (the new generation radio system for the railways) the opportunity is taken to reinforce communications initiatives, particularly during the transition phase.



8. Conclusions

As with any set of guidelines, or indeed attempts at system modelling, not all the elements will be entirely appropriate for immediate and universal transfer to all quarters of the rail industry. The ideas outlined in this paper represent however, the potential that exists and have been established not on a whim or theoretical brainstorming but instead on real experience. The opening of the rail market in Europe will bring with it new companies, new opportunities and new horizons. It will mean the potential bringing together of cultures, languages and philosophies that have never worked together before on a regular basis, at least not within the railways.

The future success of the railways in Europe will rest largely with the people who will be making these ever-longer journeys and they need our help to communicate with each other and keep the railways safe and efficient.

We cannot possibly expect to change these cultures or philosophies overnight but we can help them with the language. As they grow closer together in their everyday working lives, they will learn to understand each other's cultures and philosophies and this made easier by having the tools to make task-related communication easier and therefore one less thing to worry about.