AN COIMISIÚN UM RIALÁIL IARNRÓID
COMMISSION FOR RAILWAY REGULATION

The National Safety Authority for Railways in Ireland

2019 annual report to the European Union Agency for Railways

Version Control

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Contents

Definitions and Abbreviations

CSI	Common Safety Indicator
CSM	Common Safety Method
CST	Common Safety Target
DTTAS	Department of Transport Tourism and Sport
EC	European Commission
ECM	Entities in charge of maintenance
EMM	Enforcement Management Model
ERA	European Union Agency for Railways
ERAIL	European Railway Accident Information Links
ERTMS	European Railway Traffic Management System
EU	European Union
FTE	Full Time Equivalent
IM	Infrastructure Manager
IOD	Interoperability Directive
NIB	National Investigation Body for railway accidents
NoBo	Notified Body
NRV	National Reference Value for CST
NSA	National Safety Authority for railways
PRM TSI	Technical specifications for interoperability relating to accessibility of the Union's rail system for persons with disabilities and persons with reduced mobility
RAIU	The Railway Accident Investigation Unit, the NIB in Ireland
Railway Organisation	An Irish legal term that collectively describes Railway Undertakings and Infrastructure Managers.
RSD	Railway Safety Directive
RU	Railway Undertaking
SMS	Safety Management System
TDD	Train Drivers Directive
TSI	Technical Specification for Interoperability
VA	Vehicle Authorisation

1. Introduction

1.1. Purpose, scope and addressees of the report

1.1.1. Purpose and scope of the report

The Commission for Railway Regulation (CRR) is pleased to submit its annual report to the European Union Agency for Railways (ERA) for the year 2019. This is the second annual report under the CRR's current strategy for 2018 – 2020.

Article 18 of the Railway Safety Directive 2004/49/EC (the Directive that is transposed in Ireland by Statutory Instrument 444 of 2013) requires the CRR to publish an annual report by 30th September each year concerning its activities in the preceding year and to send it to the European Union Agency for Railways (ERA).

The CRR endeavours to show how the railway system in Ireland is performing, highlighting difficulties and good practices while leading the railway industry in Ireland on its safety improvement journey. This report aims to provide evidence of the CRR's ongoing efforts to improve safety performance in the State, communicate its main safety messages and objectives, show what it is doing and why, and explain how well it is succeeding.

The geographic scope of this report is the 1600mm gauge national railway system in Ireland. Northern Ireland is not within this jurisdiction.

1.1.2. Structure/data to which the document refers

The annual report shall contain information on:

- the development of railway safety, including an aggregation at Member State level of the common safety indicators (CSIs) laid down in Annex I;
- important changes in legislation and regulation concerning railway safety;
- the development of safety certification and safety authorisation;
- results of and experience relating to the supervision of infrastructure managers and railway undertakings;
- derogations for entities in charge of maintenance of vehicles decided in accordance with Article 14a(8) of the Directive.

Please note that this report uses the assigned template (GUI_MRA_002 V 3.0) which includes the extended requirements under the fourth railway package, in particular the recast Railway Safety Directive 2016/798. As this recast Directive is not yet in force nationally in 2019, some of the extended requirements are not fulfilled.

1.1.3. Target audience of the report

To improve European railway safety, the ERA needs to understand how the EU railway system is functioning and any issues that are impacting on safety performance. This annual report demonstrates how the CRR, as National Safety Authority (NSA) for railways in Ireland, is promoting the EU rail regulatory framework while fulfilling its tasks under the Railway Safety Directive (EC) 2004/49 and preparing for the changes to be brought about by the incoming Railway Safety Directive (EU) 2016/798.

This report offers some insight to the operational railway companies and applicants for safety certification and safety authorisation, including the railway undertakings (RU), the infrastructure manager (IM) and the entities in charge of maintenance of vehicles (ECM), which should help them to continually improve their safety management systems (SMS).

This report may also be of interest to the National Investigating Body (NIB) for railway occurrences and to the Department of Transport (previously the Department of Transport, Tourism and Sport).

1.1.4. Availability of the report to stakeholders

This report will be published on the websites of the CRR and the ERA.

1.2. Main conclusions on the reporting year

1.2.1. Main conclusion about how the railway system performed

Overall the railway system in Ireland performed well in 2019, particularly in the context of an increase in overall passenger numbers such that they reached 50 million for the first time in Ireland, representing an increase of 4.3% on the previous year.

The regulated entities in Ireland requiring recertification and reauthorisation engaged extensively with the CRR in relation to conformity assessment for their respective renewed safety certification and safety authorisation, which were achieved in March 2019.

Extensive supervisory functions including audit and inspection were planned and carried out on a risk basis. On the national rail network, formal enforcement after an audit or inspection was required in two instances.

Two 'significant accidents' (as defined by the Directive) were reported, which is lower than the trend in recent years. These were inspected by the NSA and determined to be caused by unauthorised access to the railway.

A review of some aspects of the national primary railway legislation was initiated by the Department of Transport and the CRR proposed amendments based on its experience. Transposition activities for the fourth railway package also commenced.

1.2.2. Overall trends

The safety performance of the Irish railway sector was broadly positive when compared against previous years, and against a backdrop of increasing passenger journeys and train/tram kilometres travelled.

There were no passenger fatalities in 2019, but four people lost their lives after trespassing onto the railway. There were no reports of deaths at level crossings.

2019 saw a continued reduction in train collisions, particularly with large animals. Signal Passed At Danger (SPAD) occurrences decreased to 12 in 2019, from 13 in 2018. Even though the number of such events remains low, this accident precursor will remain a focus for the CRR.

There is some concern regarding performance in national indicators related to the platform train interface, where performance targets have not been met. This is discussed in detail in section 4.

1.2.3. Impact of the above analyses on the next year activities

Ascertaining a trend in accident and incident statistics in Ireland is difficult given that the number of occurrences is very low. In 2020, the CRR Supervision Team will focus as always on those key assets that give cause for concern. In planning its annual program of work every year the CRR reviews the safety performance of each RU's and IM's, including the type and number of accidents, incidents they have suffered, audit and inspection findings, complaints and representations by, or on behalf of staff and passengers. Using this data, together with professional judgement, new supervision plans are developed for the forthcoming year.

These supervision plans are risk based meaning those RU's and IM's that have greater exposure to risk, by virtue of the size of the operation, can expect more supervision than those who have limited exposure to risk. The CRR adopts the principals for supervision that include proportionality, consistency, transparency and we work closely with the RU's and IM's we regulate.

1.2.4. Priority actions for the next year

With the transposition of the Railway Safety Directive and the Interoperability Directive and their coming into effect on 31st October 2020 the CRR will include actions to ensure that both Railway Undertakings and

the Infrastructure Manager are aware of the new requirements which they place on them. Similarly we will ensure that we as the NSA are in a position to assist the regulated entities to meet these requirements.

The CRR will be renewing its Statement of Strategy in 2021 and will therefore prioritise engagement with all the sector stakeholders to ensure that the new strategy reflects the key objective relevant to the future development of our national rail system and its continuous improvement.

2. Summary

The CRR had a challenging program in 2019 relating to its safety and regulatory functions. These included a range of safety assessments associated with the certification and authorisations required under EU legislation, as well as safety supervisory functions on the major regulated entities including audit and inspection planned on a risk-based analysis. We continued to monitor RU's and IM's implementation of CRR required actions and the recommendations of the Rail Accident Investigation Unit (RAIU), which continue to be addressed by the regulated entities.

In addition, the CRR as the monitoring body for the Infrastructure Manager Multi Annual Contract fulfilled all of its functions. The duties and responsibilities to ensure the maintenance of the infrastructure in the contract were fulfilled within budget limitations.

As part of its key safety functions the CRR undertook a range of activities relating to conformity assessment, authorisation to place in service, supervision and enforcement. These actions were focused on the continued safe operation of the Irish rail network. The required certification and authorisation applications were made to the CRR including the new Safety Certification to Rhomberg Sersa Ireland Ltd and a renewal for Balfour Beatty Ireland Ltd, although the certificate for Balfour Beatty Ireland Ltd was later revoked following changes to its contractual relationship with IÉ-IM and the conclusion of its business in Ireland.

In 2019, four letters of authorisation for vehicles were issued by the CRR. One Certificate was issued by the NSA when acting as Designated Body for the INF Subsystem. One Authorisation for Placing in Service of a Fixed Installation for the CCT Subsystem was issued by the NSA. In terms of train driver licensing, 28 licences were issued by the NSA in 2019. There were no licences amended, renewed, suspended or withdrawn.

The CRR carries out supervision and enforcement functions with an emphasis on support, advice, encouragement and when necessary direction. With regard to asset management, CRR inspectors undertook the following inspections in 2019:

- 18 stations
- 12 railway bridges
- 6 cab-rides
- 30 level crossings (ground level), more were observed whilst undertaking cab-rides.

These inspections resulted in a multitude of outcomes ranging from 'scope for improvement' where action is determined by the railway organisation to 'minor non-compliance' where evidence is sought by CRR inspectors to see that action has been taken. With regards to audits, these are fewer in number given the greater resource requirement for such activities. Three audits were initiated in 2019.

The societal and economic value of both the heavy and light rail networks is clearly evident with the increasing numbers of both heavy and light rail passenger journeys in 2019. There was an increase of approximately 4.3% in heavy rail use: this equates to just over 50 million passenger journeys.

The CRR in 2019 engaged with stakeholders in relation to Brexit and the impact of a no-deal Brexit on EU railway undertaking licencing, driver licencing and certification in the context of EU rules in the field of rail transport.

3. NSA safety strategy, programs, initiatives and organizational context

3.1. Strategy and planning activities

3.1.1. NSA strategy and planning of activities/initiatives to improve the safety railway system.

In 2019, the CRR continued to implement its current three year Statement of Strategy which sets out the vision, mission and key priorities for the CRR over the three year period 2018-2020.

The CRR mission states that the CRR is committed to advancing railway safety, the maintenance and further development of high performing and sustainable railway systems and ensuring fair access to the Irish conventional railway network in Ireland through regulation, monitoring, encouragement and promotion.

In accordance with the CRR's vision of "railways that safely deliver", its safety initiatives are linked to the main safety critical areas and indicators of accidents and precursors in order to improve the CSI trends.

The following priorities indicated in the CRR Statement of Strategy 2018-2020 were addressed by the CRR as it continued to deliver on its responsibilities under European and national legislation during 2019 to ensure continuous improvement in the safety performance railway systems, i.e.,

- To ensure compliance with legislation and standards via its certification, authorisation and supervision activity
- To develop working relationships and partnerships with stakeholders where opportunities for safety initiatives exist.
- To support the development of reporting and business intelligence systems to ensure safety risk is known and understood by the industry and the public.
- To promote the use of risk-based thinking amongst all RU's and IM's.
- To ensure that our programmes and the allocation of resources are based on evidence, research, analysis and evaluation.
- To give additional focus to selected areas of high and emerging risk are evident.

The following task areas were also addressed by the CRR as it continued to deliver on its responsibilities under European and national legislation during 2019:

- Continuing co-operation with, and technical support to the Department of Transport Tourism and Sport (government ministry) in the review of national legislation and the transposition of Directive EU 2016/798 and EU 2016/797.
- Professional development of all CRR staff so as to help ensure that adequate railway-specific technical and legal knowledge and skills are available within the organisation.

During 2019, the CRR carried out a benchmarking exercise with a number of European NSA colleagues on the subject of SMS conformity assessment for safety related staff and tasks. The CRR sought to explore how other NSAs interpreted the requirements of the CSMs and the ERA guidance, and what evidence was required from applicants. The study findings led to the establishment of an industry working group in the State. Following this work, the CRR are in the process of updating its guidance. This update will occur during 2020.

3.1.2. NSA process of review and continual improvement of its strategy and planning of activities/initiatives

3.1.2.1. CRR Supervision

In terms of the CRR's supervision activities these are planned annually on a risk basis using qualitative and quantitative means. During the year the CRR Supervision team meet bi-weekly at which time ongoing tasks and activities are discussed. At these meetings Inspectors can share experiences and often as a result of these discussions the scope of an activity changes or the way we will undertake the activity changes.

Moreover, the CRR Supervision team together with colleagues from the Conformity Assessment and APIS Team come together annually to essentially undertake a SWOT Analysis of the year's supervision activities.

Inspectors are encouraged to share what they felt worked well and what did not. Similarly, staff are encouraged to suggest new supervision activities or methods for same. At this 'Workshop' Inspection Templates are reviewed and where necessary amended thereby demonstrating continuous improvement/refinement of our supervision processes. In 2019 for example three asset/task inspection templates were updated, that for when travelling in the cab of a train and observing the infrastructure and driver, when undertaking a station Inspection and when observing an engineering possession.

3.1.2.2. Assessments and Authorisation

There is one infrastructure manager and a small number of railway undertakings operating on the network in the Republic of Ireland. This means we can determine what SMS certification/authorisation applications will be made in a given year. In 2019 the CRR completed a review of its SMS assessment timelines so that the resource implication for this activity could be spread evenly year on year rather that all recertifications occurring in a narrow timeline. Also, in relation to SMS assessment activities there were improvements in the process of receiving feedback from Supervision before an SMS application for re-certification is started and on completion of the assessment and issue of a certificate a formal communication is fed back to Supervision which will include relevant information.

With regard to authorisation to place in service projects, at the end of each year the principal inspector communicates with all potential applicants to determine as far as possible what applications are expected in the coming year to assist with resource and competency planning.

3.1.3. NSA strategies in international activities

The CRR although a small NSA values participation in as many national and international fora as possible. These include the ERA's NSA Network, European Commission's Railway Safety and Interoperability Committee, ERA Working Groups and Task Forces (TF), including most recently the TF on measuring/assessing safety climate.

In addition, our nominee attends and contributes to the International Liaison Group for Government Railway Inspectorates (ILGGRI) plenary meetings and railway related conferences.

The CRR is also an active member of the International Railway Safety Council (IRSC) which it sees as an excellent forum for the exchange of experience and lessons for improving railway safety. In 2019, the CRR attended its annual conference in Perth, Australia.

3.2. NSA measures adopted or planned regarding to the recommendations issued by NIB and monitoring of their implementation status

(in accordance with art. 26(2) of the Directive (EU) 2016/798).

This is an ongoing task of the CRR Supervision Team and the CRR have been monitoring the implementation of NIB Safety Recommendations since 2008. Safety recommendations issued by the NIB to the CRR are reviewed and formally issued by means of a letter to the necessary organisations. The organisations in turn

are required to advise the CRR of their acceptance or otherwise together with details of actions taken or proposed or details as to why they believe no action is necessary.

Thereafter periodic meetings (typically quarterly) are held with the principal RUs and the IM to review progress. Records are kept and there is then a formalised method by which evidence is submitted, reviewed and closed. No new measures were adopted or planned in 2019

NIB Safety Recommendations					
Year	Reports	Open	Submitted	FER	Closed
2010	5	1	0	0	25
2011	6	0	0	2	14
2012	3	0	0	0	13
2013	2	0	0	1	9
2014	5	0	0	5	16
2015	2	0	0	2	2
2016	3	7	0	2	11
2017	1	1	0	2	2
2018	1	5	0	2	2
2019	4	18	0	11	7

The status categories are;

Open / In Progress : Feedback (Evidence) from Railway Organisation (or another party) is awaited or actions have not yet been completed.

Submitted: The Railway Organisation (or other party) has made a submission to the CRR, advising that it has taken measures to effect the recommendation and the CRR is considering whether to close the recommendation.

FER (Further Evidence Requested): The CRR has reviewed a submission (or further submission) but considers that further evidence is necessary to close the safety recommendation.

Closed: The CRR has reviewed a submission (or further submission) and is satisfied that the safety recommendation has been addressed.

3.3. Safety measures implemented unrelated to the NIB Safety Recommendations

3.3.1. NSA measures adopted or planned by NSA

The focus of the CRR's 2019 Supervision Programme was to;

1. Supervise the continued application of the Railway organisations approved SMS, i.e., checking compliance with legal requirements, i.e. Common Safety Methods, the Railway Safety Act 2005 etc.
2. Supervise areas of identified risk, and ROs Risk Control Measures for the avoidance of accidents,
3. Encourage ROs to 'Move Beyond Compliance' i.e, challenging their SMSs to not only ensure compliance but that they are truly delivering expected outcomes, i.e., they are effective.
4. Promote human factors training for RO staff to improve awareness and knowledge. Promote the need for organisation leaders (Managers) to promote internally a positive organisational/safety culture."
5. Install in the minds of railway company personnel that safety is their no. 1 policy.

The CRR's principal supervision activities, i.e., audits, inspections and meetings are devised and planned to achieve points 1 and 2 above. In 2019 a total of 95 such activities were undertaken across the operational RUs and the IM. During these supervision activities, when an opportunity arose CRR Inspectors would highlight the need to 'move beyond compliance' and to encourage training and development in the field of human factors. Indeed in 2019, a CRR Inspector whose specialism was human factors resigned their position and was recruited to the state RU/IM as a Human Factors Specialist. This was obviously disappointing for the CRR but is welcomed in terms of the RU/IM's commitment to the relatively new area in the rail domain in Ireland.

With the publication by the EU of revised Common Safety Methods that include new safety management requirements, Commission delegated Regulation (EU) 2018/762, the CRR is striving to raise the profile of the area of human factors, and in 2020 it is the CRR's intention to establish a sector working group on Human & Organisational Factors to support efforts to improve the industry's capability in this area.

As reported in the 2018 annual report and recognising the continued vulnerability at railway interfaces, the CRR, in 2019, undertook a comprehensive inspection looking at manned level crossings, a type of passive level crossing insofar as the gate is manually opened by a railway employee

3.3.2. Monitoring of implementation status

The CRR reviews the implementation of the plan identified in section 3.2.1 annually. Items incomplete or unresolved are reviewed to determine the next action depending on the principles for supervision.

3.4. Safety Organisational context

The CRR continued to receive the majority of its funding through the annual levy that the CRR places on the entities that are subject to regulation. The levy is allocated on the basis of the level of authorisation or supervision that each entity will be subject to in that year. The balance was received as Grant-in-Aid from the Department of Transport, Tourism and Sport.

3.4.1. Railway organisational context in the Member State and main changes

The railway network in Ireland is managed the IÉ- IM and comprises approximately 2,400 km of railway track, of which approximately 1,660 km is currently active, and includes 1471 passenger stations and 372 platforms. It also comprises of 5,100 bridges, 1,240 level crossings, over 4,900 cuttings and embankments and 14 tunnels. The railway is mainly single track, with 886km of double track and 60km of multiple track. The network includes main lines, suburban and commuter passenger routes, together with freight-only routes. Most of the network is comprised of radial lines focused on the capital, Dublin. The network largely provides for inter-urban connections providing strategic transport links at the national level between the six key cities on the island, Dublin, Cork, Galway, Limerick, Waterford and Belfast.
Intra-urban rail is also extensive within the Dublin area with the provision of DART in 1984 on the main network providing the core high capacity network that is central to the Greater Dublin Area's mass transit system. Passenger transport and freight services are provided by IÉ-RU and Northern Irish Railways. Passenger number have increased year on year since 2013 and in 2019 there were in excess of over 50 million passenger journeys.

There were no significant changes to the overall railway organisational context in 2019. However it should be noted that Ireland's National Development Plan 2018-2027 points to significant investment in the railway system in the coming years which includes further electrification of the conventional railway, new stations, elimination of level crossings, new rolling stock and development of a new metro system for Dublin.

3.4.2. Information relating to the NSA organisation and main changes

The Commission for Railway Regulation is the NSA in Ireland. In 2019 the Commission received sanction for an additional two members of staff, bringing its staff number to 17. The organisational structure of the CRR is shown in Figure 1, with a corresponding diagram indicating CRR workflow and relationships in Figure 2.

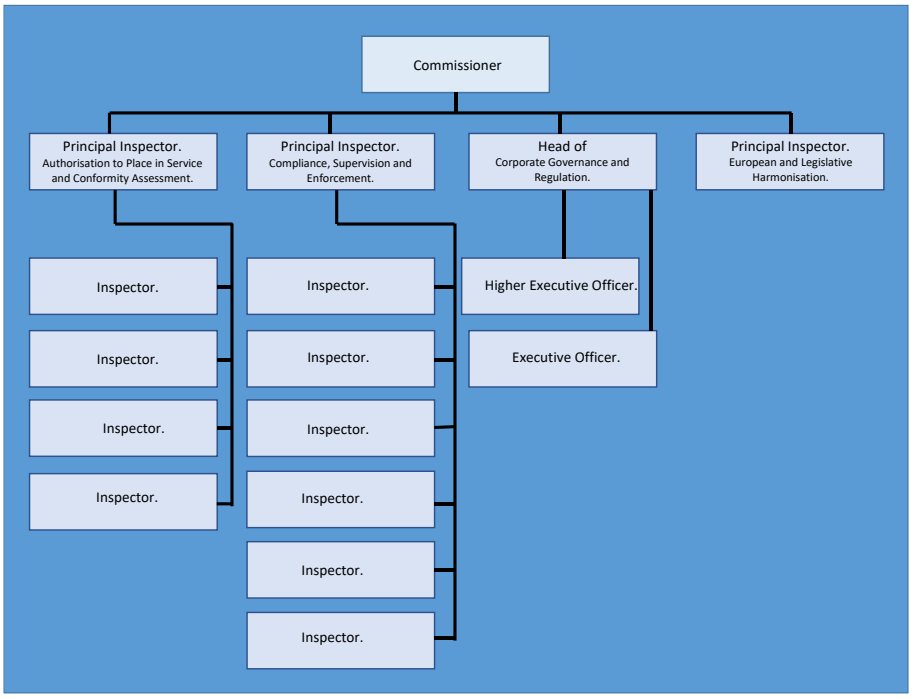

Figure 1 Staffing of the CRR at end of year 2019

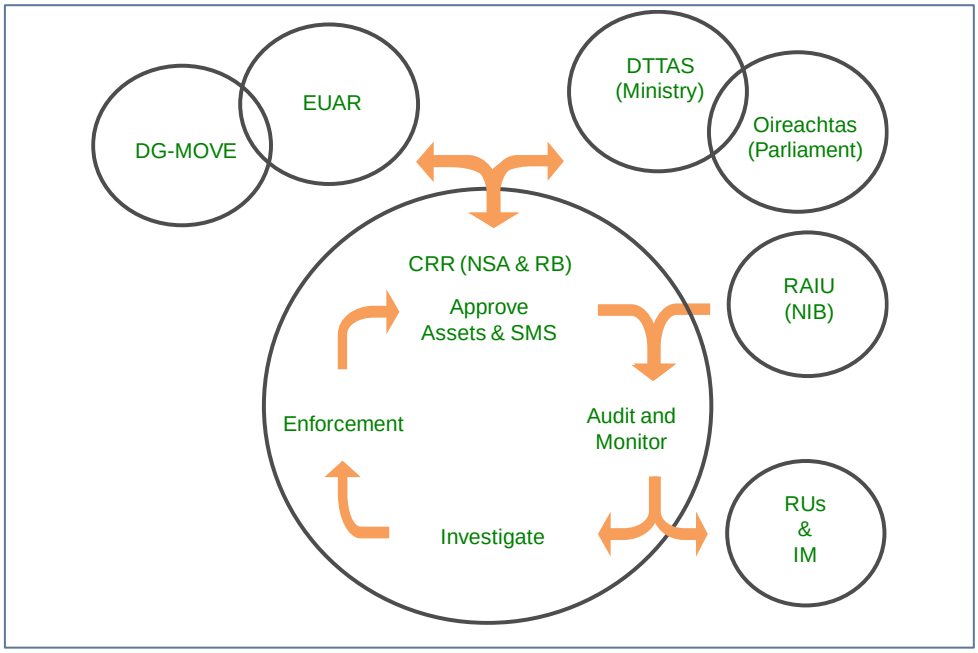

Figure 2 Organogram of independent CRR organization and primary workflows

3.4.3. NSA staff and the NSA competence management system

(Only staff dealing with railways is included), with a focus on staff dealing with the following activities: issuing Single Safety Certificate, Vehicle Authorisation, Supervision and Train Driver`s licenses).

The following sections summarise how competence is managed for NSA staff.

3.4.3.1. Single Safety Certificate

The process for delivering safety certificates and safety authorisations is described in RSC-G-030 'application guide for safety certification/authorisation'. This guideline is currently being updated to address single safety

certification and will be completed in parallel with the transposition of (EU) 2016/798. Two NSA inspectors have attended the pool of expert training at ERA on single safety certification in 2019 and 2020. Other inspectors who work on safety certification/authorisation work closely with their line manager on their first project. During a project a number of internal NSA meetings take place to discuss content of an application and to maintain a common approach for all applications.

All NSA inspectors have been offered the opportunity to complete the MSc course in the University of Birmingham titled 'MSc in Railway Systems Engineering & Integration'. The NSA has a performance management development system in place where training needs are identified and an annual budget for training purposes exists.

3.4.3.2. Vehicle Authorisation

The process for vehicle authorisation is described in RSC-G-009 'Guideline for the process of authorisation for placing in service railway subsystems'. This guideline is currently being updated to address vehicle authorisation including the requirements of (EU) 2018/545 and will be completed in parallel with the transposition of (EU) 2016/797. NSA inspectors who work on vehicle authorisation projects have attended the pool of expert training at ERA, in 2019 and 2020. Bespoke training for NSA inspectors on vehicle authorisation took place in 2017. Additional expert advice is contracted by the NSA as necessary.

All NSA inspectors have been offered the opportunity to complete the MSc course in the University of Birmingham titled 'MSc in Railway Systems Engineering & Integration'. The NSA has a performance management development system in place where training needs are identified and an annual budget for training purposes exists.

3.4.3.3. Supervision

As stated previously the principal activities undertaken by CRR Supervision Inspectors are audits, inspections and meetings.

While the CRR does not have a formal competence management system all Inspectors are degree qualified engineers, many being of chartered status. All Inspectors receive induction training together with all the necessary railway safety competences required to access the various railways we supervise.

Prior to undertaking any activity there is a period of on-the-job learning where more junior inspectors are mentored by more experienced staff. This includes acting in a support role on audits, shadowing Inspectors are they carry out asset/task observation inspections. In the case of auditing, this is supported by formal, classroom-based Lead Auditor training which all Inspectors receive.

CRR Inspectors are encouraged to maintain their own continuous professional development and are all offered the opportunity to complete the MSc course in the University of Birmingham titled 'MSc in Railway Systems Engineering & Integration', which most have availed of. Following on from this the Principal Inspector with responsibility for Supervision has an annual budget allocation per Inspector reporting to him/her to be used at the discretion of the Principal Inspector for training purposes.

Inspector reports are always peer reviewed and feedback given when necessary. Moreover, Inspector performance is reviewed twice per year following the government structured approach.

3.4.3.4. Train Driver Licences

The requirements for issuing train driver licences are detailed in RSC-G-025, sections 9, 10 and 11. The administrator at the NSA has been trained in these requirements. The principal inspector checks that all requirements are met before train driver licences are issued.

4. Safety performance

Reference to requirement: art. 19 (a) of Directive (EU) 2016/798

4.1.1. Statistics and analysis of general safety performance trends

This chapter uses the CSIs and national safety indicators when considering the reasons and context behind recent safety developments. National safety indicators are shown in the CRR's Annual Railway Safety Performance report which is published separately. The infrastructure manager has in recent years modernised their occurrence reporting and data collection systems in part to ensure that CSI and national indicators are collected by the Infrastructure Manager and all Railway Undertakings operating the national railway system. NSA-IE has reviewed the system and believes it to be effective for the purposes of indicator reporting, where technical experts in RU's and in the IM review data continually for each occurrence to verify accuracy and completeness.

The Irish network accounts for a small proportion of total EU railway traffic, with 19.263 million train-km and 2399 million passenger-km recorded for year 2019. The Irish network is predominantly a passenger railway, with 88.55 million freight tonne-km recorded for year 2019, an annual decrease of 19.1%. This follows a decrease of 12.7% in 2018; analysis indicates the trend is a result of lower demand for transport of bulk freight. The government is currently reviewing deployment of rail freight in Ireland to understand further how it may contribute social and economic objectives.

Ireland continues to have relatively low accident rates per million train-km. Although it is difficult to pick up significant trends in the CSI accidents as the values are very small, there has been an underlying decline in the five-year rolling average number of reported significant accidents. 2 significant accidents were recorded for year 2019, which is lower than 2018 (6) but continues a broadly positive trend since CSI's were introduced. The overall picture of safety in the rail industry is a good one, with most indicators trending positively.

The Common Safety Indicators (CSIs) for Ireland are available on the E-RAIL website. The following is an analysis of trends related to CSIs and national safety indicators.

4.1.2. Number of fatalities/serious injuries (total and relative to train-km).

There were two fatal accidents to persons reported in 2019 that involved entry to the railway without permission. Two other fatalities appear to have been due to acts of self-harm and have been classified as self-harm fatalities. The CRR has not received all verdicts of coroner inquests into the fatalities occurring in 2019, so the classification is based on information received from the involved IM and RU.

Separate to those fatalities, there were two incidents reported whereby persons were injured whilst accessing the railway without permission; both of these were reported to be an attempted suicide.

There were no other serious injuries to passenger or employee in 2019 involving a train movement or train accident. The Irish network continues to have a satisfactory performance relative to other European national networks, although it is recognised that there is always scope for improvement, and that the performance measures can quickly turn negative within a small railway system.

4.1.3. Number of significant accidents (total and relative to train-km).

In 2019 there were 2 significant accidents, both fatalities as a result of unauthorised entry to the railway as indicated in section 4.1.2. The 5-year average rolling trend for significant accidents has been consistently positive since the introduction of CSI reporting, with the somewhat undesirable trend displayed in 2017 and 2018 has been ameliorated somewhat in 2019.

4.1.4. Overview of safety incidents (CSI precursors to accidents and nationally used accidents)

The total number of precursors is down in 2019 to 28 from 36 in 2018. A reduction in wrong-side signalling failures was the main contributor to the reduction; of the incidents recorded in 2019 6 were ascribed to leaf

fall on the line preventing the track circuit being activated. Railway performance during the 2019 leaf fall season was noted to be broadly better than 2018; figure 3 below shows a graphic of a national safety indicator where it can be seen that platform overruns were reduced in 2019 from 2018.

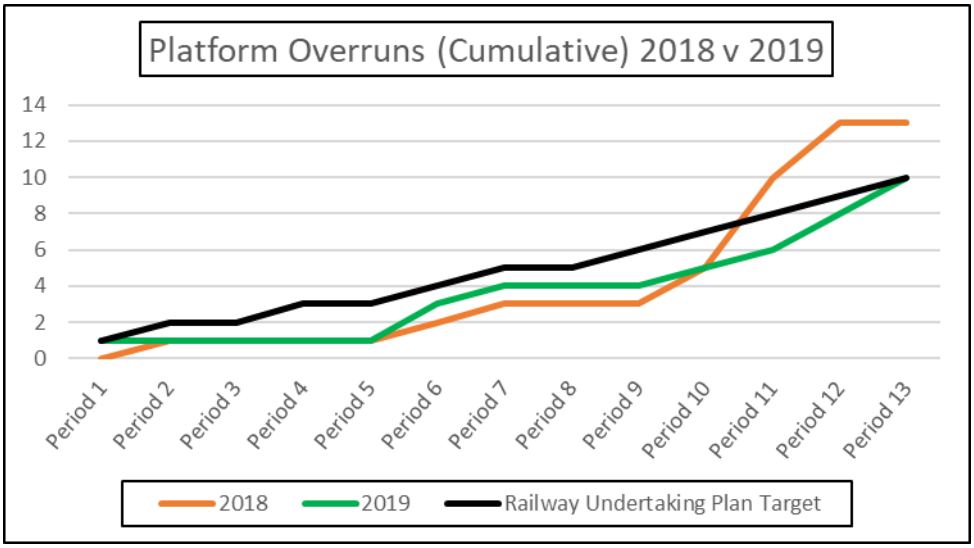

Figure 3

SPAD performance also improved where the total for 2019 was 12, one down on 2018. Importantly there were no incidents where the danger point was passed in 2019. The main IM in conjunction with the RU's has further enhanced the ergonomic and cultural tools available during its investigations to understand SPAD causation, and it is believed these are having a positive impact. NSA-IE is planning further work to understand their contribution to the SPAD risk profile. The method used to estimate SPAD risk has recently been enhanced and is also subject to review by NSA Supervision in 2020 to ensure its estimations are appropriate. 2 broken rails observed in 2019 occurred on lightly used lines and are not considered high risk due to the nature of track utilisation at those locations.

4.1.5. overview of safety outputs CSIs, such as level-crossing per type, ATP statistics and other nationally used metrics.

The infrastructure remained at steady state in Ireland in 2019, where there has been a significant focus on asset renewals and planning for large projects to replace existing signalling and energy systems. Level crossing numbers have remained steady in 2019. Design of level crossings are expected to change in 2020 at a number of crossings as the IM introduces new systems at crossings to support the crossing user's decision making process.

4.1.6. analysis of trends for main safety outcomes per category of accident and user type, safety incidents, safety outputs

As previously indicated, determing trends from CSI data in Ireland can be difficult due to the relatively small values reported for Ireland. A principle area of concern in Ireland that has emerged from national indicators is incidents at the interface between the platform and the train at stations. As can be seen in figure 4 below, the target for 2019 has not been met and broadly similar performance to 2018.

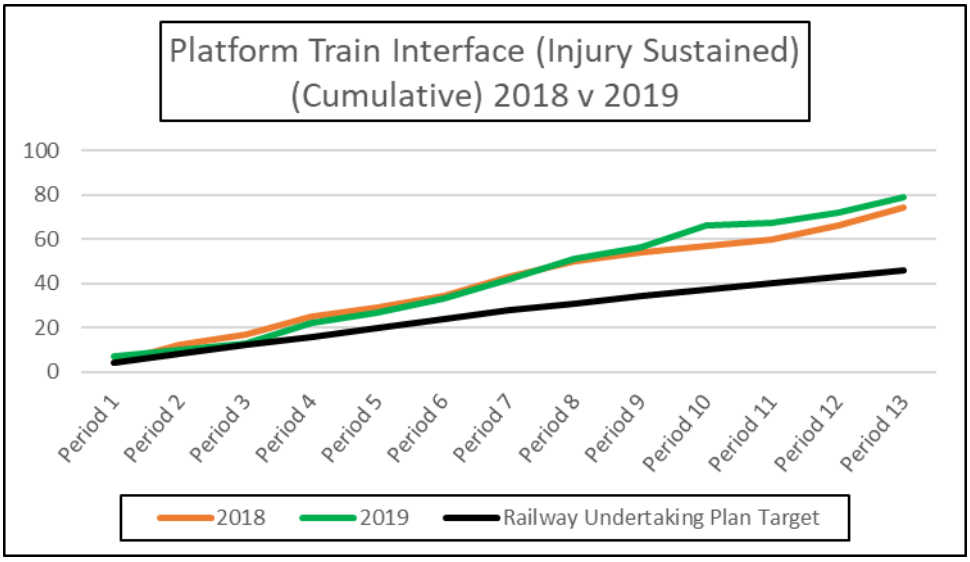

Figure 4

The injuries sustained that are indicated in figure 4 are generally minor as the medical aid provided at the scene of the incident is often sufficient to address personal harm caused. From analysis of specific events, NSA-IE considers such harm could escalate quickly to the extent that they would meet the definition of 'seriously injured'. The NSA reviews this performance with IM and RU's at quarterly meetings where there is specific focus on the actions taken to reduce safety risk. Recent initiatives that have been implemented include the introduction of specially designed batons that display colour lights to indicate readiness of the train to proceed off the platform. Another initiative has centred on improved methods for anticipating when a platform will be busy, where an analysis of exceptional large events such as sports occasions and more regular events such as daily peaks has been integrated into operational safety planning. NSA-IE supervision regularly tests such risk controls at designated inspections, where the safety performance is generally noted to be good.

4.1.7. provide information on national safety targets and underlying safety improvement plans.

Ireland currently does not define targets at a national level through legal mechanisms. This is expected to evolve when the fourth railway package is implemented.

5. EU legislation and regulation

Reference to requirement: art. 19 (b) of Directive (EU) 2016/798 and art. 19 (e) of Directive (EU) 2016/798.

5.1. Changes in legislation and regulations

5.1.1. Important changes in the implementation of the EU legal framework

(e.g. RSD, IOD, other relevant Directives, Regulation and Secondary legislation, including the change in the scope).

Transposition of RSD and IOD was extended to June 2020, as Ireland indicated in December 2018 that it would not be in a position to transpose the Directives (EU) 2016/797 and (EU) 2016/798 by 16th June 2019.

Extensive engagement with the relevant Government Department in relation to the transpositions continued during 2019.

5.1.2. Eventual amendments necessary in order to achieve CSTs

(art. 4(1) point f, art. 7(7) of the Directive (EU) 2016/798)

Not applicable in 2019.

5.1.3. Review of the operational companies' implementation of new EU regulatory framework

(concerning rolling stock, infrastructure, staff performing safety-critical tasks, staff competencies and training).

Not applicable in 2019.

5.1.4. Changes in legislation/regulation following the recommendations and opinions of the Agency pursuant to RSD

(*art. 32 of the Directive (EU) 2016/798 and art. 13 of the Regulation EU 2016/796)*

Not applicable in 2019.

5.1.5. Changes in legislation/regulation following the NIB Safety Recommendation

(art. 26(2) of the Directive (EU) 2016/798)

The NIB recommended a review the Railway Safety Act 2005 and current amendments to make clear the classification of RRVs following its Trend Investigation: Road Rail Vehicle occurrences on the Iarnród Éireann Network from 2015 to 2018 issued in October 2019. The CRR have engaged with the relevant Government Department to initiate this review.

5.1.6. Changes/amendments to the national legal framework relating to railway safety

(legal acts and administrative regulations).

The following two Statutory Instruments were published in 2019;

- SI 191 2019 – Railway Safety Act 2005 (Section 26) Levy Order2019, which places a levy on Railway Undertakings and the Infrastructure Manager that funds the CRR.
- S.I. No. 247/2019 - European Union (Transport of Dangerous Goods by Rail) (Amendment) Regulations 2019 which amends a definition in SI 194 2017.

There were no other changes to the legal framework relating to rail safety in 2019

5.2. Derogation from RSD system of certification of ECM

5.2.1. Derogations decided in accordance with Article 15 Directive (EU) 2016/798

(Derogations from the system of certification of Entities in Charge of Maintenance (ECM)).

No derogations.

5.2.2. Information according to art. 15(3) of the Directive (EU) 2016/798.

No derogations.

6. Safety Certifications, Safety Authorisations and other certificates issued by the NSA

Reference to requirement: art. 16 of the Directive (EU) 2016/798, art. 19 (c) of the Directive (EU) 2016/798, art. 24 of the Directive (EU) 2016/797, art.7 of the Commission Regulation No 445/2011, art.14 of the Directive 2007/59/EC and art. 20 of the Directive 2007/59/EC).

6.1. Safety Single Certificates and Safety Authorisations

6.1.1. Status and changes to the number and awardees of safety certificates and safety Changes to strategy and procedure related to the process of issuing Safety Single Certificate/ Safety Authorisation

Number and awardees *(names of the companies)* of new safety certificates,	Rhomberg Sersa Ireland Ltd – Parts A and B	1
Number and awardees of renewed safety certificates,	Balfour Beatty Ireland Ltd – Parts A and B ** Railway Preservation Society of Ireland – Parts A and B	2
Number and awardees of amended safety certificates *(e.g.: for extensions or reductions in scope…)* and main issues faced.		0
Number of revoked safety certificates and main reasons.	Balfour Beatty Ireland Ltd – Parts A and B **	1
Number and awardees of new safety authorisations,		0
Number and awardees of renewed safety authorisations,		0
Number and awardees of amended safety authorisations *(e.g.: for extensions or reductions in scope …)* and main issues faced		0

** Revoked because the company is no longer operating in Ireland.

6.1.2. Outcomes of discussions of supervision results with other NSAs in the context of certification/authorisation

There was no activity.

6.1.3. Changes to strategy and procedure (shall only be included if relevant) related to the process of issuing Safety Single Certificate/ Safety Authorisation

Work commenced on the drafting of guidance for issuing Single Safety Certificates/Safety Authorisations. This work will be complete in parallel with the transpositions of (EU) 2016/797 and (EU) 2016/798 in 2020.

6.2. Vehicle Authorisations

6.2.1. Status of the number and awardees of Vehicles Authorisations (VA) during the reporting year

e.g. Number and awardees of new issued VA, Number and awardees of modified and/or renewed VA and main issues faced. Number of suspended VA and main reasons. Number of withdrawn VA and main reasons]

Number and awardees of new issued VA	Iarnród Éireann	4
Number and awardees of modified and/or renewed VA and main issues faced		0
Number of suspended VA and main reasons		0
Number of withdrawn VA and main reasons]		0

6.2.2. Changes to strategy and procedure related to the process of Vehicle Authorisation

There was no activity.

6.3. Entities in Charge of Maintenance (ECM)

The CRR in its role as a certification body for ECM, reports as follows:

6.3.1. Certificates issued, amended, renewed, suspended, and revoked during the reporting year

Zero.

6.3.2. In case of suspended or revoked certification please describe the main causes/reasons

Zero.

6.3.3. Report of non-conformities which have been detected by the NSA during its surveillance activities

Zero.

6.3.4. Changes to strategy and procedure related to the process of ECM certification

Zero.

6.4. Train drivers

6.4.1. Train driver licenses issued, amended, renewed, suspended, withdrawn during the reporting year (Directive 2007/59/EC, Art.14)

There were 28 licences issued by the NSA in 2019. There were no licences amended, renewed, suspended or withdrawn.

6.4.2. Training centres recognized during the reporting year (Directive 2007/59/EC, Art.20 and Art.23(6))

There was no activity.

6.4.3. Changes to strategy and procedure related to the process of train driver licensing

The NSA published guideline CRR-G-035-A: Applicants application guide for recognition of training centres and recognition of examination centres in 2019.

6.5. Other type of authorisation/certifications

6.5.1. Cases where NSA acts as certification body for other type of railway authorisations/certification

One Certificate was issued by the NSA when acting as Designated Body for the INF Subsystem. One Authorisation for Placing in Service of a Fixed Installation for the CCT Subsystem was issued by the NSA

6.6. Contacts with other National Safety Authorities

6.6.1. Cooperation with foreign safety authorities

The CRR in 2019 continued their engagement in relation to Brexit with all relevant stakeholders and the impact that a no deal Brexit would have on railway undertaking licencing and certification and driver licencing and certification in the context of EU rules in the field of rail transport

6.6.2. Outcomes of discussions of supervision results with other NSAs

In terms of Supervision the CRR have an MoU with the Department for Infrastructure of Northern Ireland but no meetings took place in 2019, nor was there any issues that needed to be alerted to / discussed with them in 2019.

That said the CRR attend the ILGGRI plenary sessions and at a meeting in 2019 we did raise and discuss our safety concerns surrounding the use of Road Rail Vehicles in engineering possessions. In 2018 and 2019 there was an increase in the number of occurrences involving RRVs, e.g., infrastructure damage, possession irregularities, collisions and we wished to obtain an understanding as to whether other NSAs had experienced similar issues.

Moreover, we wanted to check do other NSAs approve these types of vehicle for use on the railway and if so what sort of approval is given, i.e., full APIS or a generic type approval

6.7. Exchange of information between NSA and railway operators

6.7.1. Exchange of information between the NSA and RU/IM

(describing the scope, the frequency and how the exchange is done)

There was no activity

6.7.2. Topics/critical points exchanges/discussed for the reporting year

There was no activity.

6.7.3. Relating findings and initiatives

There was no activity.

7. Supervision

(Reference to requirement: art. 19 (d) of Directive (EU) 2016/798 and Commission Delegated Regulation EU 2018/761).

7.1. Strategy, plan, procedures and decision making

7.1.1. supervision strategy, including how planning (e.g. data concerning CSIs, input from Safety Recommendations, etc.,) takes this into account and any relevant changes made as a result of the analysis of safety data along with an explanation of why those changes were made

In terms of supervising the continued application and effectiveness of each RU and IM safety management system, the CRR prepares annual supervision plans for several RU's and the IM. For 2019, these included;

- Iarnród Éireann (IÉ-IM) – Infrastructure Manager
- Iarnród Éireann (IÉ-RU) – Railway Undertaking
- Balfour Beatty Rail Ireland (BBRI)– Railway Undertaking
- Rhomberg Sersa Rail Group (Ireland) - Railway Undertaking
- Railway Preservation Society of Ireland (RPSI)– Railway Undertaking
- Northern Ireland Railways (Translink) – Railway Undertaking (Part B only).

Each railway organisation's supervision plan that the CRR develop include audits, inspections and meetings with senior managers.

These plans are developed by the CRR Inspectors at an annual workshop where the safety performance of each individual railway organisation supervised is discussed. This involves reviewing key safety performance data many of which would be categories of CSI. Then depending on their performance, i.e., is it improving or worsening trend the level of activity can increase or decrease.

Additionally, in terms of a plan's execution, activities are prioritized based on risk meaning those railway organisations that have a greater exposure to risk can expect more engagement with the CRR than those organisations with limited exposure.

With regards to the Infrastructure Manager, in 2019, the CRR focused on the IM's management of level crossing safety at a type/category of level crossing while on the state railway undertaking the CRR undertook an inspection of the RU's management of risk associated with violent and abusive behaviour, along with an inspection of dangerous goods safety advisor competence management.

Mid way through 2019 saw a new entrant to the market in Ireland. Rhomberg Sersa took over the track maintenance contract that had previously been operated by Balfour Beatty Rail Ireland. CRR Inspectors met with company management towards the end of the year and reviewed their safety performance and discussed any safety initiatives they were implementing.

7.1.2. a commentary on the global risks of the railway system in the Member State and how the supervision strategy addresses those risks and how this is linked to the CSTs. The decisions taken on the areas to focus on in supervision should also be linked to an analysis of the risks and expected benefits from the activity

To assist in the overall management of risk and allocation of resource the state Infrastructure Manager developed and uses a bespoke Network Wide Risk Model. It takes into account infrastructure assets, rolling stock and operational data and uses these to undertake a quantitative risk assessment highlighting the IM's highest risks.

The IM defines global risks into 3 categories. These are:

• Prime: accidents entirely within the state railway (RU and IM) control

• Shared: accidents influenced both by the state railway (RU and IM) and the person who experiences the accident
• Illegal: accidents where the person who suffers the accident is acting illegally.

The principal risk areas, total risk and prime risk identified by the state railway undertaking and infrastructure manager include the following:

5 Highest - by Total Risk	5 Highest - by Prime Risk
1. Platform-Train Interface	1. Derailment
2. Slips, trips and falls	2. Collision between train
3. Trespass/train surfing	3. Structural failure
4. Collision between train	4. Train/object collision
5. Derailment	5. Train / vehicle LX accident

The highest risks (Total Risks 1-4) are typically high-frequency, low-consequence events. That said given the relative size of the Irish Railway Network the number of occurrences is small. Prime risks are typically those low-frequency, high-consequence events. However, the State RU and IM have suffered very few serious accidents in recent times with just one low speed passenger train derailment in 2019, which resulting in only very minor injuries.

The last full update of the NWRM was in 2017 and the above table is representative from this 2017 run of the risk model. The CRR have been advised that the IM are currently running a full update with data to the end of 2019 and it is expected that this update will be concluded by the end of 2020.

7.1.3. supervision plan, including the timeframe of the plan and any changes to the plan during the year being reported on and any impact on the next year's supervision activities

As stated in earlier sections the CRR's supervision plans are developed on an annual basis. A significant number of changes to the 2019 supervision programme plans were necessary primarily due to the resignation of two members of staff from the CRR Supervision section. This represented a 40% loss of available staff to undertake supervision activity and meant that the supervision programme had to be curtailed with a number of activities either cancelled or deferred.

Additionally, planned supervision activity on an RU was cancelled owing to them losing their contract. Their successor only commenced activity mid-way through 2019 and were a completely new entrant to the Irish Railway market. It was considered appropriate to provide them with sufficient time to commence operation and start the implementation of their newly approved SMS. That said a number of safety performance review meetings where held with company executives and an Inspection of their activity undertaken

7.1.4. decision-making criteria on how the NSA monitored, promoted and enforced compliance with the regulatory framework and the procedure for establishing those criteria

The CRR's supervision activities are based on perceived risk to the safety of passengers, staff and third parties. Safety performance data together with intelligence sources such as previous CRR supervision activities, accidents, incidents and dangerous occurrences, NIB reports etc. collected in the preceding year informs Inspectors of areas where their attention may be required and supports the development of the next year supervision plans.

RU's and the IM are assigned a risk profile based on their safety performance and those organisations with a higher risk profile can expect more supervision that better performing railway organisations.

When it comes to enforcement CRR Inspectors employ the 'risk gap' technique where they first assess the level(s) of actual risk arising from the railway organisation's activities. Inspectors base this judgement on information about hazards and risk control measures informed by their training, experience, knowledge of

past incidents and accidents in the State or in other countries, guidance and other relevant sources of information.

Having identified the level(s) of actual risk the Inspector should identify the risk gap, i.e., is it minor, inadequate, absent or extreme. Depending upon the Inspectors judgement together with a peer review an enforcement action is taken.

To assist CRR Inspectors throughout the process guidance is available and internal discussion and challenge is encouraged amongst the team.

Relative to the national rail network, Section 76 of the RSA 2005, a request for Improvement Plan was used on 2 occasions in 2019. These were –

• 1 Improvement Plan was requested following an inspection of a level crossing at which fog signals (explosive devices) where found to be unsecured in terms of their storage and out of date;

• 1 Improvement Plan was requested following an uncontrolled movement and collision at a railcar depot seeking improvements in their safe systems of work.

7.1.5. main complaints submitted by stakeholders (if any) on decisions taken during supervision activities and the replies given by the NSA. If there is a negative return this should be recorded

Following a supervision activity, be that an audit, inspection or meeting draft reports/minutes are issued for comment to the relevant organisation. The applicable organisation is encouraged to raise any concerns they have and identify any factual inaccuracies that may have been made. These are formally recoded and then responded to by the lead Inspector. In most cases issues are resolved prior to the finalisation of the report/minutes, however, if there are diverging views these are recorded in the report together with CRR reasoning for its decision.

No formal complaints were raised by stakeholders regarding decisions taken during supervision activities or on the replies given by the NSA to any comments or queries raised by CRR Inspectors in 2019.

7.1.6. any changes to the regulatory regime in the member state with impact on supervision strategy, plan or decision making

Nil.

7.2. Supervision results

7.2.1. Number and outcome of inspections and audits carried out during the reporting year

With regard to asset management, CRR inspectors undertook the following inspections in 2019:

• 18 stations

• 12 railway bridges

• 6 cab-rides

• 30 level crossings (ground level), more were observed whilst undertaking cab-rides.

These inspections resulted in a multitude of outcomes ranging from ‘scope for improvement’ where action is determined by the railway organisation to ‘minor non-compliance’ where evidence is sought by CRR inspectors to see that action has been taken.

With regards to audits, these are fewer in number given the greater resource requirement for such activities. The following tables present the number of audits carried out during 2019 together with the number of outcomes from each audit.

Table 1 - CRR Audits initiated in 2018 and finalised in 2019

Railway Organisation	Title of Audit	Major Non-Compliance	Minor Non-Compliance	Action Required
Iarnród Éireann-RU	Audit of Limerick Rolling Stock Maintenance Depot	0	1	0
Translink NIR	Competence Management	0	0	0

Table 2 - CRR Audits initiated and finalised in 2019

Railway Organisation	Title of Audit	Major Non-Compliance	Minor Non-Compliance	Action Required
RPSI	Internal Auditing, Continuous Improvement and Target setting	0	2	4

For those audits that were finalised in 2019, as indicated in the tables above no instances of major non-compliance were identified. Across the railway organisations audited a small number of minor non-compliances with legislation and/or an approved SMS were identified and in every case the lead (auditor) Inspector considered if there was a risk to the safety of persons

7.2.2. Results of and experience related to the supervision such as how many visits required remedial work from the supervised entity

In 2019 the CRR continued to focus on passive level crossings, albeit this year focusing on those that are attended by a member of staff from the Infrastructure Manager. In an Irish context these are referred to as either C or CX type level crossings typically comprising wooden gates that are normally closed across the railway but opened by an attendant when they have been notified a train is approaching.

There is approximately 70 such crossing type on the network and in 2019, 21 (30%) were inspected.

Key findings included:

• Out of date documentation was found in a small number of accommodation buildings.

• The condition of the crossings (road surface, cattle grid, signage) was noted to be generally good, albeit there is some inconstancy when it comes to road markings.

• The storage and control of fog signals / detonators was below that expected. An improvement Plan was required in this regard.

Also in 2019, the CRR audited the Infrastructure Manager's management of new works in particular focusing on the interface with the operational railway. Another inspection undertaken on the largest heritage railway undertaking focused on their internal auditing, target setting and continuous improvement.

7.2.3. Supervision results by topic of supervision, including supervision of training centres and transport of dangerous goods

Training centres were not the subject of any supervision in 2019. However, in terms of dangerous goods we did a documentary inspection of the state railway undertaking's Dangerous Goods Safety Advisor Competence. We found that formal competence had lapsed, and we therefore worked closely with Iarnród Éireann to ensure continuity of service whilst recognising risk associated with the task is managed.

7.2.4. Supervision results of the correct application by RUs/IMs and effectiveness of all processes and procedures in the management system according to Regulation (EU) 1078/2012[1]

All RUs and the State IM have an approved SMS that includes adequate internal audit standards to monitor the correct application and the effectiveness of their SMS. The CRR meets quarterly with the larger RUs and the IM to review their safety performance in the preceding quarter. A standing item on the agenda at these meetings is to review their progress against their own internal audit/inspection plans, finding and outcomes from these and any actions being taken to address issues found.

Similarly, following accidents and incidents railway organisations must conduct robust investigations to determine immediate, underlying and root causes. Action plans must be put in place and these are sampled by CRR Inspectors to seek what actions have been taken.

In 2019 and indeed 2018 and 2017 there were a significant number of Road Rail Vehicle (RRV) occurrences relative to the total number of occurrences. This prompted the NIB to undertake a class investigation that resulted in a significant number of safety recommendations. Separately the CRR has written to the IM advising of its safety concerns and have been advised that a root and branch review into the use and operation of RRVs will be undertaken.

7.2.5. in relation to the implementation of the 4th railway package, the supervision results for closing out the "type 3 issues" raised during the single safety certification of the SMS by from either ERA or the NSAs for the areas of use

No work was undertaken in this area owing to Ireland deferring transposition of the interoperability and safety directives until 2020.

7.2.6. Evidence obtained in supervision activities, when an ECM is not compliant

No activity undertaken in this area in 2019 hence no such evidence obtained.

7.2.7. Comments on the success of the SMSs in controlling risks

During the course of CRR supervision activities Inspectors in addition to checking compliance with standards, also check for areas of 'good practice'. The CRR defines 'good practice' as an area highlighted which, in the opinion of the CRR Inspector/Auditor, is good practice within the industry.

No formal 'good practice' items were cited in 2019 however, positive action and activities undertaken by Iarnród Éireann was noted in respect of the following;

• IÉ-RU creating a new Human Factors Specialist post and recruiting a well-respected HF practitioner.

• IÉ-IM holding a multi agency emergency planning workshop at which the level of engagement from tabletop exercises was noted to be very positive and well organised.

7.2.8. any specific interventions with the operational companies on specific topics, why these took place and results

Nothing to report.

[1] *Art 1 2(a) to check the correct application and the effectiveness of all the processes and procedures in the management system, including the technical, operational and organisational risk control measures.*

7.3. Coordination and cooperation

7.3.1. Outcomes of discussions of supervision results with other NSAs

The CRR has a memorandum of understanding (MoU) with the Department for Infrastructure (DfI), the NSA in Northern Ireland. There was no cause for contact with the DfI in 2019.

Further afield the CRR reached out to other NSAs with a short survey seeking their experience in terms of accidents/incidents involving Road Rail Vehicles (RRVs) and if they consider these types of vehicles to be 'rolling stock' and thus require vehicle authorisation.

8. Application of relevant CSMs by RUs and IMs

Reference to requirement: art. 19 (f) of Directive (EU) 2016/798.

8.1. Application of the CSM on Safety Management System

8.1.1. Analysis of the application of the CSM on SMS by RUs and IMs

[e.g. if through an evaluation of the EMM the NSA identifies for RUs and IMs the need of specific training to develop Safety culture and/or address Human and Organisational Factors].

There is no relevant experience of this as this CSM has not yet been applied in Ireland as transposition of the Fourth Railway Package is not expected until 2020.

8.2. Application of the CSM for Risk Evaluation and Assessment

8.2.1. the changes of the sector maturity with the understanding of the CSM, and the increase or the decrease of its application

Application of this CSM has remained broadly consistent amongst the sector in Ireland. The method for assessing 'significance' of a change within the CSM provides for variations in how the regulation is interpreted by an RU/IM, and as such places a reliance on the management maturity of an RU/IM. No variations in management maturity levels have been observed but work is ongoing within the NSA to continuously improve the method for assessing maturity.

8.2.2. the differences of experience and application between big and small companies, newcomer and incumbent railway companies, RUs, IMs and ECMs

The quality of application of the CSM by big and small companies is not noted to be substantially different in Ireland in 2019. One minor observation is that small companies apply the regulation less frequently and typically to projects of smaller scale.

8.2.3. the differences in the assessment of technical, operational and organisational changes, including the actor who plays the role of CSM assessment body for operational and organisational changes

Technical and operational changes tend be grounded in standardisation and technical rules, where use of explicit risk estimation methods is restricted to when codes of practice are not deemed practicable or applicable. Assessment of organisational change is heavily reliant on qualitative risk assessment and is difficult to standardise using a code of practice approach.

8.2.4. coordination (or lack of) with the actors involved in the change/project for a joint identification and joint management of the risks shared across the interfaces between them, including the way the relevant information is exchanged between them

Experience of management of interface risks during a change project is generally good. As the system in Ireland is not large and SMS's are quite integrated, the number of interfaces is not considered substantial.

8.2.5. availability in the companies of sufficient qualified and competent resources in the risk assessment and risk management fields

Objectively assessing if relevant practitioners within companies are qualified is a difficult task as NSA-IE has observed some difficulty in interpreting competence management requirements in CSM-CA; this issue is being addressed by a cross industry working group currently (see 3.1.1). In practical terms, it is generally noted that most projects have a safety and compliance expert involved who generally ensures the project meets relevant SMS and legal requirements.

8.2.6. combined use of the CSM for risk assessment and CSM for monitoring for a proactive and controlled management of changes, including the identification of information for the monitoring during the operation and maintenance of the railway system and the effectiveness of predictive measures from risk assessments

CSM MON is observed to be embedded in the SMS's in the sector in Ireland, the Plan-Do-Check-Act cycle is accepted as an important principle for safety management. CSM MON is typically applied automatically following a project where CSM REA is relevant. Significant projects in Ireland are expected to embed monitoring systems to check the safety of the change at all points in lifecycle of the system being changed. When CSM REA process is concluded, risk assessments are required to be embedded into the register of risk for that company; the effectiveness of how this is done in practice is uneven however, and following several supervision activities in this area NSA-IE is in discussion with regulated entities about how to further improve transfer of risk from the project to operation. Additional guidance on how to assess and transfer risk is one measure being considered.

8.2.7. the overall railway sector experience in the country, including the moment when the risk assessment is done (e.g. from the beginning or at the end) in the project and the quality of the risk assessment documentation (real proactive risk management or purely cosmetic paper work)

Projects assessed as significant typically have the NSA's APIS (Authorisation to Place In Service) process applied hence are subject to elevated scrutiny by NSA-IE. The experience is observed to be acceptable and the quality of risk assessment is adequate.

8.2.8. the proper use of the concept of significant change or misuse of the concept to escape the obligation to appoint an independent CSM assessment body (lack of trust). In the second case what is the quality of the demonstration of a correct control of the risks arising from non-significant changes when Annex I of the CSM is not used by RUs, IMs and ECMs

The 'test' for significant change is considered to have multiple interpretations that are compliant hence there is little observation of 'misuse' of the concept.

8.2.9. the most positive experience found with the use of the method and the main remaining problems

The most positive experience is the greater degree of standardisation that CSM REA has provided, and all principle problems have been discussed in previous sections.

8.2.10. in relation to the implementation of the 4th railway package, the actions for closing out the "type 4 issues" raised during the single safety certification of the SMS by from either ERA or the NSAs for the areas of use

The fourth railway package was not in force in Ireland in 2019.

8.3. Application of the CSM for Monitoring

8.3.1. any changes of the sector maturity with the understanding, correct application of the CSM, and improvement of documentary evidence

The sector has matured considerably since the SMS's was first certified by NSA-IE in 2011. Experts within companies understand the CSM and its purpose, and this understanding is transferred to the SMS. The implementation of SMS procedures can sometimes bring uneven results which the NSA has found ineffective, but broadly the trend is positive. Retention of documentary evidence is generally strong.

8.3.2. how the companies set out the strategies, priorities and plans for monitoring activities among the following options

The following options were provided by the agency in the guidance for this report;

a) proactive monitoring as part of the SMS that checks the effectiveness of the SMS processes, procedures and risk control measures, based on priorities (i.e. areas of greatest risk);
b) or monitoring everything, or;
c) proactive monitoring based on expertise and results from previous monitoring activities to identify what to monitor, but unclear links to SMS;
d) reactive monitoring strategy based on lessons learnt from accidents and incidents investigations in order to prevent similar occurrences.

Safety Strategies and plans are guided by a legal principle in Ireland that it is the general duty of an RU/IM to ensure, in so far as is reasonably practicable, the safety of persons during railway operation. As such, the approach to monitoring combines options a, c, and d. Option b is not used as it is accepted that it is not practical to continually monitor everything. For option a, the NSA requires annual plans to be produced and presented at the beginning of each year, where these plans are reviewed quarterly with the NSA. Options c and d are considered reactive but important to implement when unplanned or unexpected events occur. For example, RU's are expected to implement additional interim risk control measures in the event of vehicle fire whilst the cause of the fire is being determined.

8.3.3. in relation to the implementation of the 4th railway package, monitoring of the OPE TSI for any key issues that arise

The fourth railway package was not in force in Ireland in 2019.

8.3.4. availability in the companies of sufficient qualified and competent resources in the risk assessment and risk management fields

Objectively assessing if relevant practitioners within companies are qualified is a difficult task as NSA-IE has observed some difficulty in interpreting competence management requirements in CSM-CA; this issue is being addressed by a cross industry working group currently. In practical terms, it is generally noted that RU/IM's have a safety and compliance expert involved in managing safety who monitors conformance with SMS and legal requirements.

8.3.5. any differences with respect to the monitoring of operational processes and procedures vs. organisational and technical risk control measures (e.g. effectiveness or quality of documentary evidence)

No major differences are observed as focus in the Irish sector is on monitoring the process used to ensure the safety of an asset/process rather than just the end result.

8.3.6. any differences of experience and application between big and small companies, newcomer and incumbent railway companies, RUs, IMs and ECMs

None observed.

8.3.7. proper coordination (or lack of) with other stakeholders (including the suppliers and sub-contractors) for monitoring the effectiveness of control measures for the risks shared across the interfaces, in particular reporting to manufacturers of defects and non-conformities or malfunctions of technical equipment

Processes for checking control of supplier of services and suppliers of components require improvement within the sector in Ireland. Several minor compliance issues have been observed where service providers are not properly assessed for competence and component suppliers do not always provide a product to the correct specification. NSA-IE has prioritised inspection of related compliance requirements.

8.3.8. combined use of the CSM for risk assessment and CSM for monitoring for a proactive and controlled management of changes, including the identification of information for the monitoring during the operation and maintenance of the railway system the effectiveness of predictive measures from risk assessments

CSM MON is observed to be embedded in the SMS's in the sector in Ireland, the Plan-Do-Check-Act cycle is accepted as an important principle for safety management. CSM MON is typically applied automatically following a project where CSM REA is relevant. Significant projects in Ireland are expected to embed monitoring systems to check the safety of the change at all points in lifecycle of the system being changed. When CSM REA process is concluded, risk assessments are required to be embedded into the register of risk for that company; the effectiveness of how this is done in practice is uneven however, and NSA-IE is in discussion with regulated entities about how to further improve transfer of risk from the project to operation. Additional guidance on how to assess and transfer risk is one measure being considered

8.3.9. in relation to the implementation of the 4th railway package, the actions for closing out the "type 4 issues" raised during the single safety certification of the SMS by from either ERA or the NSAs for the areas of use

The fourth railway package was not in force in Ireland in 2019.

8.3.10. the sector perception of the CSM for monitoring on whether it is considered as a proactive tool protecting the company business and enabling to optimise the company costs and competitiveness or seen just as a legal obligation

The sector has not reported such concerns to the NSA regarding CSM MON. Discussion generally indicates its requirements are appropriate.

8.3.11. the use of results from monitoring by the company top management and middle management to identify the necessary action plans and review the monitoring strategy, priorities and plans

Top management in the sector are made aware of results from monitoring. There is some concern regarding how top management track the effectiveness of action plans; it has been observed that lagging indicators are the main measurement type applied, but this is not always the case as leading indicators are sometimes used.

8.3.12. the overall railway sector experience in the country with the method in using it proactively to prevent accidents and incidents, or just as purely cosmetic paper work

The experience of the regulation is good, and is expected to improve further when the fourth railway package is implemented in Ireland.

8.3.13. any areas for improvement

NSA-IE propose the agency develop a guide that integrates guidance for CSM REA and CSM MON, similar to the guideline 'Taking Safe Decisions' from the UK Railway Safety and Standards Body.

8.4. Participation and Implementation of EU projects

No information available.

9. Safety Culture

9.1. Safety culture evaluation and monitoring

9.1.1. Evaluation and monitoring of the development of safety culture at the national level

CRR Inspectors meet with RU and IM personnel whilst undertaking its daily activities, be that in audits, whilst undertaking inspections or in meetings. It is clear that safety is a top priority for management and good progress has been made, for example the state RU and IM engaged consultants to conduct a large safety culture survey in 2018 that concluded in 2019. Broadly speaking the findings from this were positive.

However, it is the CRR's opinion that a blame culture remains an issue in some organisations in terms of some managers continuing to focus on an individual's failings for example following an occurrence rather than considering wider system failings.

That said the standard of accident investigation reports, certainly those undertaken by the Infrastructure Manager, have improved particularly in the area of human and organisational factors. Quite often reports now identify system failings in addition to any individual issues that are uncovered and make recommendations to bring about change.

9.1.2. Use of safety culture models or conceptual frameworks to support regulatory oversight of safety culture

The CRR has participated on the ERA Safety Culture Task Force and participated in trialling the draft European Railway Safety Culture Model during 2019. Our methodology was to incorporate the safety culture model in all activities rather than in a discrete audit or inspection. Positive and negative findings were recorded by some Inspectors, but it is reasonable to say that take up was less than that hoped.

9.1.3. Evaluation method to oversee safety culture of RUs and IMs

The CRR do not have a formal evaluation method to oversee safety culture within the RUs and IM, rather Inspectors, through their engagement with those railway organisations, note attitudes, observe behaviours, and record actions taken by railway personnel. It is not simply 'what they say they will do, rather it is what they actually do' and these actions are typically documented in CRR reports or recorded on file for possible future work.

We use several methods/sources to monitor safety culture in the sector. These include undertaking audits, inspections and meeting with company executives and others, investigating public/railway staff complaints, reviewing NIB and railway organisation reports, all of which inform us as to safety culture aspects of the railway organisation.

9.1.4. Summary of activities relating to safety culture included in the planning and execution of supervision and results of those activities

No dedicated safety culture activities were undertaken in 2019 other than participating in the trialling the draft European Railway Safety Culture Model. This involved meeting with the state RU and IM at the start of the year and presenting the model and CRR's methodology. Then after each supervision activity (or other activity where an observation is made by an inspector on Safety Culture), the Inspector involved;

- Reviews the ERA Safety Culture model and identifies which attributes observations were made on
- Records the details of their observation
- Saves any supporting evidence (e.g. photos, documents)

9.2. Safety culture initiatives/projects

9.2.1. Initiatives/ projects undertaken by the NSA or within the national sector which contribute to the development of a positive safety culture

Nothing to report.

9.2.2. If safety culture is a separate project for the NSA, description of the project carried out

Nothing to report.

9.2.1. Initiatives implemented within the NSA to improve its own safety culture

Nothing to report.

9.3. Safety culture communication

9.3.1. Communication activities to the public/stakeholders relating to the safety culture activities performed

See sections 9.1.2 to 9.1.4 inclusive.

10. Theme chapter

The activities of the NSA in Ireland have been described in Section 1 – 9, no other significant activities are completed.

ANNEX: Progress with Interoperability, 2019

Please provide the following information as it is at the 31st December of the reporting year.

Please refer to the Appendix for definitions.

1. Lines excluded from the scope of IOP/SAF Directive (end of year)

1a	Length of lines excluded from the scope of application of the IOP Directive [km]	0
1b	Length of lines excluded from the scope of application of the SAF Directive [km]	0

Please provide the list of lines excluded:

2. Length of new lines authorized by NSA (during the reporting year)

2a	Total length of lines [km]	0

3. PRM adapted stations (end of year)

3a	PRM TSI compliant railway stations	-
3b	PRM TSI compliant railway stations - partial TSI compliance	-
3c	Accessible railway stations ('step-free' access to platforms)	110
3d	Other stations (i.e., where all or part of station is not 'step-free')	34

4. Train driver licenses (end of year)

4a	Total number of valid European licenses issued in accordance with the TDD	540
4b	Number of newly issued European licenses (first issuance)	540

5. Number of vehicles authorized under the interoperability Directive (EU) 2008/57 (during the reporting year)

5a	**First authorization - total**	0
5aa	Wagon	0
5ab	Locomotives	0
5ac	Hauled passenger vehicles	0
5ad	Fixed or pre-defined formation	0
5ae	Special vehicles	0
5b	**Additional authorization - total**	0
5ba	Wagon	0
5bb	Locomotives	0
5bc	Hauled passenger vehicles	0
5bd	Fixed or pre-defined formation	0
5be	Special vehicles	0
5c	**Type authorization - total**	0
5ca	Wagon	0
5cb	Locomotives	0
5cc	Hauled passenger vehicles	0
5cd	Fixed or pre-defined formation	0
5ce	Special vehicles	0
5d	**Authorizations granted after upgrade or renewal - total**	0
5da	Wagon	0

5db	Locomotives	0
5dc	Hauled passenger vehicles	0
5de	Fixed or pre-defined formation	0
5df	Special vehicles	0

6. ERTMS equipped vehicles (end of year)

6a	Tractive vehicles including trainsets equipped with ERTMS	0
6b	Tractive vehicles including trainsets – no ERTMS	0

7. Number of NSA staff (full time equivalent employees) by the end of year

7a	FTE staff involved in safety certification	3
7b	FTE staff involved in vehicle authorization	2
7c	FTE staff involved in supervision	4
7d	FTE staff involved in other railway-related tasks	4

Appendix to ANNEX: Applicable definitions - Progress with Interoperability

Applicable definitions are those contained in the relevant articles of the legal documents.
In addition the following definitions apply:

1. Lines excluded from the scope of IOP/SAF Directive (end of year)

Railway lines excluded by the Member States from the scope of the application of RSD/IOD: DIRECTIVE (EU) 2016/797, Art. 4 a-d; DIRECTIVE (EU) 2016/798, Art. 3 a-d, as of 31.12.20xx (reporting year).

2. Length of new lines authorized by NSA (during the reporting year)

Length of lines constituting the Union rail system authorized for placing in service in accordance with Article 18(2) of Directive (EU) 2016/797 during the reporting year.

3. PRM adapted stations (end of year)

Railway stations as of 31.12.20xx (reporting year), that complies with the requirements of the Commission Regulation (EU) No 1300/2014 on the technical specifications for interoperability relating to accessibility of the Union's rail system for persons with disabilities and persons with reduced mobility (PRM TSI).

Full TSI compliance means full conformity with PRM TSI requirements, as demonstrated with the NoBo certificate. Partial TSI compliance means conformity with some (but not all) PRM TSI requirements, as demonstrated with the NoBo certificate. Accessible station means a station considered accessible under national legislation. (No NoBo certificate available.).

Railway station means a location on a railway system where a passenger train service can start, stop or end.

4. Train driver licenses (end of year)

Newly issued and valid driver licenses as of 31.12.20xx (reporting year), issued in accordance with the Directive 2007/59/EC of the European Parliament and of the Council of 23 October 2007 on the certification of train drivers operating locomotives and trains on the EU railway system.

5. Number of vehicles authorized under the interoperability Directive (EU) 2008/57 (during the reporting year)

The number of issued, renewed and amended vehicle authorizations for placing on the market in accordance with Article 21(8) of Directive (EU) 2016/797 during the reporting year.

5. ERTMS equipped vehicles (end of year)

Number of operated tractive vehicles (owned, leased, and rented minus rented-out) equipped with ETCS.

Vehicles without power units are excluded. Multiple units to be counted once. Includes only vehicles which are operated to transport freight or passengers. Yellow fleet and other IM vehicles are not included. Includes only vehicles which are registered in the country of main business activities of RUs.

7. Number of NSA staff (full time equivalent employees) by the end of year

Total number of full time equivalent NSA employees as of 31.12.20XX (reporting year).

Only staff dealing with railways is to be included.