Guidance for safety certification and supervision

Management Maturity Model

EUROPEAN UNION AGENCY FOR RAILWAYS

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1. Introduction

Following the granting of a single safety certificate or safety authorisation, national safety authorities (NSAs) must ensure that what the applicant for a single safety certificate or a safety authorisation has presented as their safety management system (SMS) is effectively implemented and continues to fulfil legal obligations. In other words, NSAs must carry out a level of supervision of the railway undertaking's or infrastructure manager's activities to ensure that what was said in their application for a single safety certificate or a safety authorisation reflects the reality.

The European Union Agency for Railways (also named hereafter the 'Agency') has developed this Management Maturity Model (MMM) to assist NSAs in assessing railway undertakings' and infrastructure managers' SMS during their supervision.

The use of a Management Maturity Model can also serve as a 'window' into the safety culture of an organisation and assist NSAs and the organisations they regulate in discussing how those organisations can improve their SMS.

The model has been introduced by the Agency as guidance. NSAs are free to use it or not as they choose. If an NSA has its own model or another means of assessing how good an SMS is, then it can use its own method. Nothing in this document calls into question the validity of existing models that achieve the same ends.

Any railway undertaking or infrastructure manager is also free to use the Management Maturity Model on its own organisation at any time it wishes to do so. The guidance is freely available and downloadable from the Agency website along with the tool necessary to populate the 'radar' plot of results. Also available on the website or from the Apple store or via Google Play is an App which contains the maturity model assessment tool for ease of use in field work. The Agency would suggest that a railway undertaking or infrastructure manager uses the model throughout the 5-year period to carry out its own assessment, informed by supervisory activity, and reviews the findings during the renewal application for a single safety certificate or a safety authorisation. At this point it can be used to highlight any areas of weakness in the SMS that the railway undertaking or infrastructure manager may have and gives them an opportunity to address any deficiencies before the application for a new single safety certificate or safety authorisation is made.

1.1. Purpose of the guide

This guidance document provides NSAs with a simple model which will allow them to make a judgement on how well the railway undertakings and infrastructure managers' SMSs are working.

The model aims through the use of simple levels, to categorise the performance or capability of the SMS, based on the evidence gained during supervision to make a reasonably accurate assessment of the performance of the whole or a part of an organisation's SMS depending on what the NSA decides to look at during its supervision.

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It should be noted that since the model is applied during supervision and supervision can only take place once a single safety certificate or authorisation has been granted. The different levels in the model start therefore from a point at which an organisation has fallen below the bare minimum required to be granted a single safety certificate or authorisation. At Level1 the NSA carrying out supervision would be expected to take action to remedy the situation, in the most extreme cases this could entail the withdrawal of the single safety certificate or safety authorisation or referral of the case to the safety certification body, to consider this. This is because performing at this level would result in any application for renewal of a single safety certificate or safety authorisation being rejected.

1.2. Who is this guide for?

The present document is addressed to:

- *The national safety authorities when assessing railway undertakings' and infrastructure managers' SMS during their supervision;*
- *The national safety authorities when establishing their supervision strategy and plan(s);*
- *The national safety authorities when sharing information between themselves, where there is joint or coordinated supervision, on the safety management system performance within their respective Member State;*
- *The national safety authorities when sharing information with the Agency after the receipt of an application for renewal or update, where the Agency is responsible for issuing the single safety certificate; and*
- *The railway undertakings and infrastructure managers as a self-assessment exercise to evaluate their SMS performance, in particular before submitting a renewal application for its single safety certificate or safety authorisation or as part of a self –monitoring exercise.*

1.3. Scope

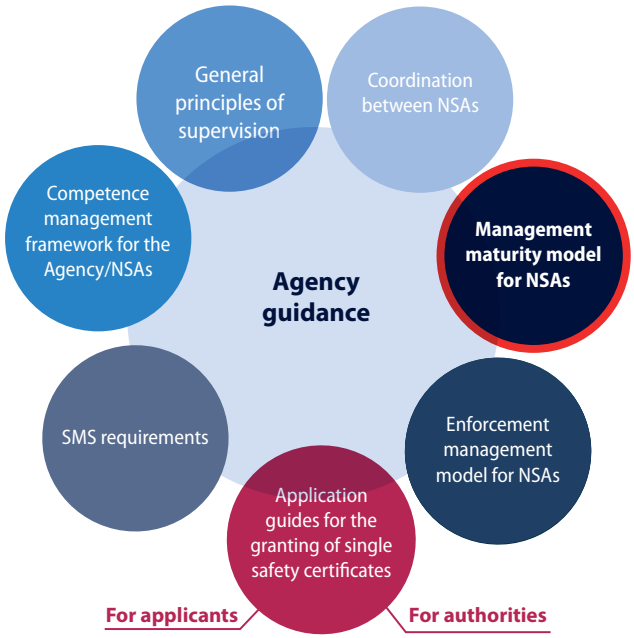
NSAs need to have some means of measuring the quality of the SMS in practice against the theory presented at the single safety certificate or safety authorisation (in the case of an infrastructure manager) application stage. The Agency Management Maturity Model can fill this need but any individual NSA is free to devise their own method of providing such supervision information to the Agency.

The model is not intended to be the definitive answer to the question of how good any individual SMS is but rather a means to provide some rigour and structure to the judgement of the NSA on the subject.

1.4. Guidance structure

This document is part of the Agency compendium of guidance supporting the railway undertakings, infrastructure managers, national safety authorities and the Agency, in fulfilling their roles and undertaking their tasks in accordance with Directive (EU) 2016/798.

Figure 1: Compendium of Agency guidance



The Agency Management Maturity Model uses the same basic structure as Annex I and II of Commission Delegated Regulation (EU) 2018/762 to form a judgement about the quality of an organisation's SMS. Three of the requirement headings are slightly different in order to accommodate the App version of the tool, however, the intent behind each requirement remains the same between the maturity model and the SMS requirements. It also fulfils the NSA need for a tool which can be used to meet the requirements set out in Article 7(1) of Commission Delegated Regulation (EU) 2018/761 for the evaluation of the effectiveness of the SMS and in Article 5(2) of the same Regulation for the evaluation of the safety performance of the railway undertaking or infrastructure manager. The approach enacted in Article 5(2) aims at creating a strong link between assessment and subsequent supervision, facilitates a better information exchange within NSAs and between NSAs and the Agency (i.e. between those undertaking supervision and those carrying out assessment) and finally, brings more clarity for the railway sector to understand how their own safety performance informs the NSA supervision (e.g. prioritisation of supervision activities to areas of greatest risk for safety).

Each section of the model has a purpose explaining what the section is about and in some cases some introductory notes to add further clarification. For each section 5 levels are indicated Inadequate –Level 1, Coping -Level 2, Consistent- Level 3, Anticipating- Level 4 and Excellent- Level 5. Each of these levels has some text explaining what performance at this level against the requirement element looks like. The user is required to assess the evidence they have gained from interviews, document review etc. and make a judgement about the best fit against a particular level. From Level 2 onwards the text indicates that the performance should be judged against the preceding Level plus the next level so Level 4 includes the elements at Level 3 plus the extra ones for Level 4. This is because Level 2 is the first Level at which performance is considered to be legally compliant.

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In order to generate the levels against each requirement and receive a representation of the results in chart form, the user must complete the excel spreadsheet accompanying the model which is available on the Agency website, or the user can download the Agency SMS App which has this functionality inbuilt. Entering the numbers in spreadsheet or via the App will populate a radar plot/spider diagram an example of which is shown in Figure 2 (see section 3.2). Once completed the resulting chart can be copied into the report to the railway undertaking/infrastructure manager.

Table 1 (see section 3.2) shows a different way of representing the same data as a simple table allowing the levels to be set out using a traffic light system. Again this can be completed as required and copied into the final report to the railway undertaking/infrastructure manager once complete. Whether to use one or other or both means of representing the findings is a choice for each NSA (or railway undertaking/infrastructure manager) to make.

1.5. Four things to know before using the model

There are four things which must be borne in mind when using such a model:

1) It is a snapshot in time of whatever part of the SMS is looked at.
2) The numerical level is less important than what the judgement says about how well the SMS is working.
3) As the results of audits/inspections of separate parts of the SMS are likely to vary, *the findings can be used as indicators to inform the overall capability assessment of the average performance of the SMS of a* railway undertaking or infrastructure manager. When applied by well trained staff, what the model does is provide a picture of the performance of an individual SMS and so provide a focus for improvement of those areas which are performing less well. At a national level use of the model will also give an overall picture for the NSA of where to target scarce resources to improve safety, since it could show for example a systemic weakness across the railway industry in one particular area of safety management. For example if all the railway undertaking's results indicate a low level for risk assessment this could be a significant input for the NSA in developing the supervision strategy.
4) It is essential that in agreeing the scope of the assessment using the model both the NSA and the organisation being assessed are very clear as to the extent and level of the intervention. This is extremely important since this will reflect the level of confidence that can be placed in the judgements made by the NSA.

2. The Management Maturity Model and risk control

The assessment of the SMS acts as a proxy for making a judgement on the capability of the organisation to control the risks from its railway operations. If the SMS is working well it is a reasonable assumption that the risks from the organisation's operations are being well controlled. If the organisation's SMS has weak areas it is an indication that the risks in those areas are not being adequately controlled and as a result it is likely that in these areas there will be the greatest possibility of the conditions existing which will allow an accident or incident to occur compared with other areas where the SMS is performing well. Therefore, the higher the score under the MMM the better is the control of risk.

2.1. What is an acceptable level to be reached within the model for an NSA?

Looking at the model below it can be considered that once an organisation has reached (level 3) it will normally be performing in a manner which should ensure that the SMS is delivering an appropriate level of risk management and control. This is of course a Level above that at which minimum legal compliance is achieved (Level 2). There is a good reason for this. At the level of minimum legal compliance there is a constant risk of slipping beneath it to Level 1 which is below that level. At Level 3 of course the level below would be Level 2 so there is some insulation from an unacceptable level of performance. It would be wrong, however, for organisations to aim at Level 3 as the Level to achieve. The intent of the model is to aid the NSA in a discussion with a railway undertaking or Infrastructure Manager on areas of weakness in their SMS and where they can **improve**. Clearly, from an NSA perspective - given that they should focus resources on the areas of greatest risk - if a railway undertaking or an infrastructure manager is found to be performing at the higher levels of the model it might decide to reduce supervision of this organisation for a period compared with a railway undertaking or infrastructure manager performing at the lower levels and which needs to improve. This can be an incentive for railway undertaking's and infrastructure manager's to seek to improve their SMS so that they score at that higher end of the spectrum. It is also worth pointing out that in the experience of some NSAs using such models the use of the different levels creates competition between railway undertakings to be the 'best in class' for safety management which can help to encourage safety improvement in a Member State. This may also have implications for their ability to win new contracts in the future, depending on the business opportunities available in individual Member States.

2.2. Application of the model across National Safety Authorities with differing legal powers

The present model is intended to assist NSAs in assessing the ability of the SMSs of railway undertakings and infrastructure managers within the terms of the Railway Safety Directive and its associated Regulations. It should also be noted however that whilst respecting this, NSAs also operate within the powers conferred on them by national law. This means for

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example that some NSAs have responsibility for ensuring that occupational health matters are properly addressed by railway undertaking's and infrastructure managers within their Member State and some do not. In the model below therefore occupational health matters are not covered within the text guidance. However, if an NSA chose to apply the model across Safety and occupational health matters then the basic principles outlined below can easily be applied to these elements.

2.3. Reports

Once an assessment has been carried out a report can be written summarising the results found. The report should detail the evidence that leads to a conclusion of a particular level. The findings can be presented as either a radar plot/spider diagram or traffic light table. The purpose of the report is to identify strengths and weaknesses and to provide the basis for a discussion with the organisation on what areas they are going to improve over the life of the single safety certificate or safety authorisation. In writing the Report the depth of the assessment should be clearly stated at the outset so that there is an understanding of the level to which the NSA has probed the SMS arrangements in a particular area.

2.4. Prerequisite for using the model

All NSA staff using the model should be competent in its use. Using the model will require the NSA staff to understand the parts of the SMS as set out in Annex I and II of the CSM on the Safety Management Systems as well as the model itself. Staff should also be competent in appropriate interviewing and inspection techniques and capable of taking a range of information from different sources and distilling it into the relevant sections of the SMS. In practice, where possible, document review should be carried out before on site interviews. The MMM is designed for one competent person to use, however, due to the logistical difficulties of carrying out multiple interviews and to give some additional assurance as to the findings it is good practice use to competent persons who can support each other during the supervision activity.

2.5. How to use the model?

The MMM model is not a replacement for the judgement of the person carrying out supervision. It is rather an aid to making a judgement allowing a sharper focus and a better linkage between the evidence on which it is based and the elements of an SMS. It will therefore help those carrying out supervision to present their findings to railway undertakings and infrastructure managers and the railway undertakings and infrastructure managers to understand why those findings have arisen. For example if interviews, document reviews and field work show that an organisation does not have a robust document management system this can be flagged as a weakness of the SMS by the NSA carrying out supervision and the evidence for this can be discussed with the organisation and remedial actions agreed. The NSA can also use the weaknesses in the document management system of an organisation to highlight problems with internal audit and monitoring since these should be finding such problems.

The different headings of the model correspond to the different parts of the SMS as set out in Annex I and II of the CSM on Safety Management System Requirements. This means that there

is a direct link between this model as used in supervision and the assessment carried out by the NSA or the Agency (acting as safety certification body) before a single safety certificate or a safety authorisation is granted. This also means that careful and planned use of this model as a supervision tool by an NSA can fulfil the function of checking that the organisation that has been granted a single safety certificate or a safety authorisation has an SMS which delivers what it said it did at the application, for the life of the single safety certificate or safety authorisation. So the output of the MMM is important information for the organisation and the safety certification body as it will have relevance for applications for the renewal of single safety certificates or safety authorisations. It is also noted that the individual elements of the SMS as set out in the model are all linked forming a unified whole. This means that in considering the overall findings the NSA may consider the question of performance of the SMS within the individual elements but they may also consider what this means for its overall performance.

An NSA can use the MMM immediately after the granting of a single safety certificate or authorisation to give a baseline picture of the performance of a safety management system at the start of the life of the single safety certificate or safety authorisation. The information gained at this stage can then form the basis of planned supervision for the remaining period of the single safety certificate or the safety authorisation. This approach could be appropriate where the organisation involved has had a previous SSC/SA and therefore has some track record in the working of its SMS. For a new entrant to the market with no previous SMS experience immediate supervision using the MMM may not give much more information than was learnt at the assessment stage as the SMS is new and untried. Alternatively, once the single safety certificate or safety authorisation is granted the supervision authority using any information passed to it by the assessing authority on areas of interest for supervision can plan the use of the MMM over the life of the single safety certificate or safety authorisation taking account of the need to provide sometime for the organisation's SMS to be tried in practice.

The NSA is advised to use the results of the MMM as an input into its supervision strategy (and hence supervision plans). In practice, this might mean that less supervision is given to organisations or parts of organisations which get high levels on the MMM than those which are given more modest levels overall or in particular areas. However, whilst this approach is a legitimate use of the information gained to prioritise risk it should be set against the relative risk of the overall operation. For example, a freight company specializing in the transport of dangerous goods may get levels of 4 and 5 on the MMM and therefore could be considered to have a very mature SMS and yet it would still be appropriate to exercise close supervision of it given the nature of the risks associated with the business.

When allocating a level to an element based on the evidence it is likely that supervision will identify both positive and negative sides. A decision will therefore need to be taken as to whether to award a higher or lower level on the scale. A judgement will need to be made on the balance of the evidence available. If this tends to a higher rather than a lower level then this should be reflected in the decision made. If the evidence is equivocal then either the person carrying out the supervision should seek more evidence during targeted current and/or future supervision activities (e.g. reality checks/inspections) to make a more accurate judgement or a lower level should be used on the basis that the evidence to support a higher one is not there. When the closing meeting with the railway undertaking/infrastructure manager

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is held the difficulty in making a decision can always be raised and the railway undertaking/infrastructure manager given an opportunity to provide additional evidence. However, care should be taken in doing this. Such an action should be an exceptional event rather than the norm since allowing additional evidence could lead to the railway undertaking/infrastructure manager addressing matters at this stage rather than dealing with them within the scope of the action plan following the supervision activity.

The question of how much evidence is required to make an accurate judgement is difficult to answer. The evidence will be a combination of interviews, documentary evidence, field observation and the results of incident/accident investigations at given times, dates and locations in most cases. The basis of the judgement must be on the evidence that is found. So if the railway undertaking/infrastructure manager argues that what was found is not representative then it does not change the result since what was found was found. That it was possible to find a situation that the railway undertaking/infrastructure manager does not recognise is itself indicative that there are issues with the functioning of the SMS, that the railway undertaking/infrastructure manager is disputing this is also a signal that all is not as it should be. If a number of pieces of evidence point to an area under examination being well managed then it would be legitimate to stop seeking further evidence at that point. If by contrast the evidence does not give that assurance but it is not possible to conclude why this is so, then further evidence should be sought. It is not necessary to examine all processes and procedures from the high level to the detailed work instructions to draw conclusions as to whether the system functions effectively. Enough information from document review and interviews needs to be drawn to conclude with a reasonable level of certainty what the picture looks like in practice. It should be remembered that in the end a report using the MMM is a report made by a competent person using the model to support their professional judgement and based on a sample of documents, interviews and other information it is unlikely ever to represent an absolute picture of an organisations performance since this would require the review of every piece of information relating to the organisation and the interviewing of every person who works for it and any organisations who have interfaces with it.

In general what is being looked for is evidence that the area under examination is, a) managed safely, b) that this management is coherent and linked to the way that the SMS is supposed to function according to the original application for a single safety certificate or safety authorisation and c) the organisation is aware of what is going on. If a) exists without b) or c) then it can be said that safety is being managed by good fortune rather than by a coherent plan which clearly implies a deficient SMS.

It is extremely important that when presenting the findings to the organisation that has been assessed, it is made very clear what the level of the assessment has been. The evidence seen and people interviewed should be noted in the report. Where examples of deficient documentation are found then these should also be appended to the report.

If the model is being used to assess particular areas of the SMS then the areas which are not assessed should be clearly identified in the scope of the study and should not be given a level in the final report unless sufficient evidence emerges from the areas within the scope of the study to make a comment upon them. For example whilst carrying out a study on asset management it becomes apparent that there is a weak competence management system. In

this case it would be legitimate to give a level to this area even though it was not the main focus of the audit using the model.

The person or persons carrying out supervision should undertake enough interviews/ document reviews/field work to be confident that they have a good picture of what is going on. The picture does not need to be complete but enough evidence needs to be assembled to justify the point at which the railway undertaking/infrastructure manager is placed in the model. For a small railway undertaking/infrastructure manager interviews of the key senior staff and a small sample of other staff could be enough to establish where the organisation sits in terms of Leadership for example. For a large railway undertaking/infrastructure manager with multiple bases and a multi-layered management structure getting such a complete picture will be more difficult and more choices will have to be made over who to interview at a senior level. In these circumstances it would be legitimate to take a vertical slice through the organisation perhaps on a yearly basis looking at different areas each time and interviewing an appropriate number of people at each management level to be able to form a considered view of the topic area.

For large and complex organisations it would be appropriate to use the model to gain an overall picture of how the organisation is run, for example by looking at high level documentation and interviewing senior managers, before using the model to look at discrete aspects of their activity, for example vehicle maintenance across a number of sites. In such a case for a well-run organisation with a good SMS, it should be possible to see that the high level view/ documentation is reflected in the same way in each of the maintenance depots looked at. This does not mean that there cannot be differences between the depots themselves simply that the overall structure in its key elements is the same and is operated in the same way. Similarly for a poorly performing organisation one would expect to see differences between the view that the overall leadership have of how the organisation runs at the maintenance depot level and that in the depots themselves as well as significant differences between the depots themselves which could translate into safety risk, e.g. differences in the periodicity of exams for similar vehicles with no explanation as to why this can be so, whilst the leadership only recognise one such maintenance structure.

The numbering system in the model is there to assist in the categorisation of management maturity. Obtaining a certain score should not be seen as an end in itself. When presenting the findings to a railway undertaking/infrastructure manager it is very important to make this point and to stress that the results are the judgement of the person carrying out supervision based on the evidence seen at a certain time and place.

Some opposition may be expected from railway undertakings or infrastructure managers either disputing the 'level' in which case it is important to stress that it is the NSA view based on the evidence seen and heard, and they are entitled to a different one based on their own knowledge of the organisation. If the railway undertaking/infrastructure manager tries to address the issue by providing more evidence then a choice will have to be made as to whether to accept this as noted above and to modify the findings as a result or to point out that the findings are those found at the time. Any evidence supplied subsequent to the supervision which gives a more positive view should generally be submitted as part of evidence to fulfil the action plan agreed between the organisation and the NSA.

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At the closing meeting it should be stressed that the point of the exercise is to assist the railway undertaking/infrastructure manager in improving their SMS. Action points should be identified to address any deficiencies in meeting legal requirements, i.e. at level 1 and Improvement points identified for level 2 and above. These should be agreed with the railway undertaking/infrastructure manager and the railway undertaking/infrastructure manager should undertake to produce a time-bound action plan addressing the issues giving details of who will be responsible for what and by when the changes should be delivered so that the NSA can follow these up as appropriate.

The model is there to assist in carrying out supervision it is not there to replace professional judgement. It does not pretend to give the exact answer to what is discovered during supervision nor does it indicate what should be done about it. Any enforcement action which may follow supervision using the model is for the NSA to decide based upon the legal powers that it has but clearly drawing on the evidence discovered during the MMM audit. To assist NSA's with working out what enforcement action may be appropriate the Agency has produced an Enforcement Management Model Guide.

The model can also be used to look at findings from accident investigations or company audit reports. In this case the findings of the report should be analysed to see what they say about the SMS. Once the relevant requirement element has been identified then a judgement can be made using the model on the maturity of the organisation based on the findings in the audit or accident investigation report. For a single report this does not perhaps tell you very much about the organisations safety management capabilities but if carried out as an exercise once a year or every other year where multiple reports can be examined it can be a powerful tool to identify areas of the organisations SMS where problems keep occurring.

3. Model Levels

The structure used is a 1-5 scale where 1 represents weak performance of the management system and 5 represents an excellent management performance.

3.1. Definition of achievement levels

Level 1 - Inadequate

At this level the organisation that is being assessed has a Safety Management System but it is clear that there are deficiencies which bring the level of performance below the legal minimum that was required for the granting of a single safety certificate or safety authorisation. Procedures and instructions to manage safety activities exist but during supervision it is apparent there are serious issues about how coherent these are as a whole. Individual risks are controlled, however the overall process that manages this is weak. The organisation operates in practice in a manner in which there appears to be major inconsistencies with what is described in the SMS. Policy, procedures and instructions appear to be applied in ways that do not correspond with those set out in the SMS and therefore the risks from operations delivered by the organisation or its contractors are not necessarily being adequately controlled. At this Level, the NSA should be considering action to bring the organisation back into legal compliance (see the *Agency guide on Enforcement Management Model* for further information on how this process could work).

Level 2 - Coping

At this level the organisation is performing at the level of minimum legal compliance, i.e. the SMS works at a level which was sufficient for a single safety certificate or safety authorisation to be granted at the assessment stage. The written safety management system exists and is being used to control safety risks however, there is a lack of structure and co-ordination. The system is coherent overall but there are gaps and some inconsistencies of approach in different areas. The organisation is substantially coping with its safety responsibilities, but only just. It would not take much to create a significant issue and fall back into Level 1 because the lack of integration between procedures and risk management can become a significant issue in the case of technical, operational and organisational risks. Some areas within the business are performing better at safety management than others. Risks are controlled more by the actions of the people who work for the organisation rather than through the design of the SMS. A fire-fighting approach to risk management is the normal state of affairs making the company operate reactively to accidents or incidents rather than pro-actively taking measures to prevent them.

Level 3 - Consistent

The SMS has developed to create a systematic and consistent approach to the management of risk. All the elements are in place and function and all aspects of safety are considered. Some consideration is given to the improvement of safety culture within the organisation

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through the development of a safety culture improvement strategy. Whilst the organisation is consistent it does not try to anticipate risks in advance nor is the culture within it developed enough to self-sustain the process of risk management. Fire –fighting has given way to a more considered approach to risk management but it would not take very much (e.g. a failure to manage key processes or procedures over time) for the organisation to fall back into a coping mode.

Level 4 - Anticipating

As for Level 3 and in addition, the SMS is constantly managing risk pro-actively. Here the organisation monitors precursors for risk and takes action in advance where possible to prevent hazardous incidents arising. The organisation is committed to developing safety culture, the workforce is engaged with the business in managing safety in a coherent and forward thinking manner. At this level there is real leadership from the top of the organisation and the staff within it believe in and respect the approach of the management. A lot of effort goes into regular reviews of performance and to understanding the nature of the risks the organisation faces and what can be done about it.

Level 5 - Excellence

As for Level 4 and in addition, the written safety management system is constructed in a manner which allows for continuous improvement. The organisation actively seeks out opportunities to improve safety and positively develop its safety culture using information from both within the railway sector and from outside it. The organisation benchmarks its own performance against others both within the railway sector and outside. There is evidence that the organisation is aware of issues it has or may have in the future and is actively seeking to address them through the SMS. At this level the organisation is confident of its ability to manage the risks it faces and is looking outward to educate those with whom it has interfaces and in addition it is seeking to learn lessons from other fields which can be incorporated within the business. Safety is an integral part of the business of the organisation.

3.2. Reporting the results of the model

The results of the model can be set out as a radar plot or as a traffic light system. The 'radar' plot, figure 2 and table 1 below map the SMS requirements of Commission Delegated Regulation (EU) 2018/762 against the 5 levels of achievement, by inserting the relevant level of performance to get a very visual picture of the safety performance of the organisation.

Figure 2: Radar plot/spider diagram example representation of model results

Table 1: Traffic light system by level

PDCA Elements from the SMS	Level 1	Level 2	Level 3	Level 4	Level 5
Context of the Organisation					
Leadership					
Leadership and Commitment					
Safety policy					
Roles, Responsibilities and Authorities					
Consultation of Staff and other parties					
Planning					
Risk Assessment					
Safety Objectives and Planning					
Support					
Resources					
Awareness					
Information and Communication					
Documented Information					
Integration of human and organisational factors					
Operations					
Operational Planning and Control					
Asset Management					
Contractors, Partners and Suppliers					
Management of Change					
Emergency Management					
Performance Evaluation					
Monitoring					
Internal Auditing					
Management Review					
Improvement					
Learning from Accidents and Incidents					
Continual Improvement					

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The radar plot can be populated by using the Agency mobile app *ERA SMS* available on Apple store and Google play or via a link at the Agency website. Alternatively, an excel spreadsheet is also available on the Agency website.

However, it should be understood that the boundaries between the different levels are defined in the shift from Level 1 to Level 2 because Level 1 is not the level of minimum legal compliance whilst Level 2 is. However, the shift from yellow to green when moving from 2-3 is a more opaque boundary as the organisation is legally compliant but improving in its SMS quality and performance.

To use this model, the organisation being supervised must have a safety certificate since supervision can only take place once a certificate is granted. What the model is trying to do is aid the person carrying out supervision in making a judgement about how good in practice the safety management system is. Levels 1 is considered to be a level below minimum legal compliance and therefore one where improvement is required in order to avoid receiving sanctions from the NSA for not meeting the conditions under which the single safety certificate or safety authorisation was granted.

From level 2 (minimum legal compliance upwards there is development from one level to another. For this reason in the section below, level 2 is not seen as cumulative but levels 3 – 5 are i.e. once you reach level 2 you are compliant with your basic legal requirements. At Level 3 you have reached a reasonable and consistent standard for the safety management system and are able to sustain this over time so you can build on this to achieve the higher levels. Using the traffic light system one can easily see in broad terms that level 1 (the red) corresponds to poor performance, level 2 (the yellow) is adequate and consistent to excellent as you move into levels 3, 4 and 5 (the green).

The annex shows the 5-level system plotted against the traffic light for clarity with general statements indicating what each level looks like in practice. The arrow below the table is a reminder that the boundaries between the levels are not fixed:

- Green when the ranking is equal to levels 3, 4 and 5 and performance is considered consistent, anticipating or excellent;
- Yellow for levels 2 where performance is considered to be coping;
- Red for level 1 where performance is considered basic.

4. The Management Maturity Model

4.1. C - Context of the Organisation

Purpose

In order to gain a single safety certificate or safety authorisation the applicant has to describe the type, extent and area of its operations, show how it identifies the serious risks it faces, identify 'interested parties' indicate how it complies with its legal safety obligations and what these are and explain the scope of its SMS. The purpose of this is to set the scope and scale of the operation for the assessor. From a supervision perspective it will be important to check that the assurances that were given in this area by an applicant, for example the understanding of the risk and how this is dealt with in the SMS, are reflected in the day to day reality of running the business.

Introductory notes

It is critically important that an organisation is able to convey to the supervision body the correct type, extent and area of its operations. This is because these elements set the boundaries of the operation and the organisation's SMS should reflect this. This is why this element is the first one in the decision-making criteria as it sets the scene for everything that follows thereafter. From a supervision perspective it is therefore very important that the reality of the operation reflects accurately the position stated at assessment as if it does not the implication is that the assessment was carried out using incomplete information. The explanation of the overall context of the organisation can also indicate how human and organisational factors are managed.

Identifying serious risks in this case means that the applicant should show that they are aware from their analysis of the risks they face which are the most important. This helps to set the context of the organisation and shows the assessing authority that they understand the environment in which they operate. The activities of other parties external to the railway system may also affect the safety of operations and in that respect, have also to be considered for the risk assessment.

4.1.1. C1 - Context of the organisation

Level 1 - Inadequate

At this level the basic descriptions are in place and the type, extent area and/or character of the operations are reasonably clear, however, in practice there appear to be differences in the scope of the SMS compared with the assessment and there are doubts about whether all serious risks have been adequately recorded. There are doubts that the organisation does effectively comply with all the legal provisions which it claims to. It appears that not all interested parties are properly reflected in the SMS arrangements.

Level 2 - Coping

At this level the descriptions are all in place there are however, concerns that the scope and the scale of the operation are not well described. The mapping of legal and other requirements affecting interested parties is present but there are issues with it. Some interested parties are found who are not covered by the original SMS submission and there is some evidence that serious risks are on occasion not adequately controlled with consequent implications for the effectiveness of the SMS.

Level 3 - Consistent

Level 2 plus at this level the description of the operation, the SMS and the serious risks that are faced is consistent with what is seen in practice. The organisation is clearly aware of what it does and the direction in which it is going. There is a clear view about which legislation applies and who the interested parties are.

Level 4 - Anticipating

Level 3 plus the organisation is seeking to develop and learn to present itself better to interested parties and engage with them to develop safer procedures and processes within its SMS. Rather than just list the legislation that it must comply with the organisation actively seeks to engage with the relevant regulatory authorities to develop strategies to meet legal requirements. Boundaries with other parts of the business are clearly understood and managed.

Level 5 - Excellence

Level 4 plus the organisation is a beacon for other organisations in how it presents itself. It is clear about its own character and its legal responsibilities and seeks to develop this building on its strengths and drawing on experience not just from the rail industry but beyond.

4.2. L - Leadership

Purpose

To make sure that the organisation is effectively governed and led.

To make sure that the safety policy clearly expresses the top-level management expectation, accurately defining what the organisation wants to achieve, how it will achieve it (through the behaviours shown by the leadership) and how management will know when that expectation is met. Effective leadership can be seen as providing the direction, organisation, resources and the ability to embed the right culture in the business to achieve the desired goals. The management should manage the business effectively so that safety goals are not compromised by competing business priorities. The management should make it clear to the staff what the safety goals are and how they will be delivered.

To make sure that the organisation (specifically the board) effectively challenges whether a safety policy and its associated activity is correct, in place and effective. To make sure

that messages are consistent, clear and designed to create the best environment for safety management.

Introductory notes

Poor leadership has caused many high-profile safety failures. An organisation's approach to safety often reflects the attitudes of those who make business decisions, and it leads the opinions and attitudes of the staff who work within the organisation.

The overall policy the associated procedures and the consequent safety climate established by the senior management are vital to setting and maintaining the organisation's approach to safety. The policy should give a clear understanding of how the organisation intends to manage safety. The senior team and other managers should also lead by example and act in ways that reinforce the messages contained within the policy. Railway safety arrangements are integrated within the business.

4.2.1. L1 - Leadership and commitment

Leadership and Commitment is about the organisations leaders setting the direction and a positive and forward looking agenda for the staff who work for them in order to manage risks across the business processes that they have. The leadership set the tone and the culture for how the organisation behaves both internally and with those who have interfaces with it. It is those in leadership positions who have the largest influence on organisational culture, the structure of the organisation and its efficient running and it is therefore essential that they can communicate their message to those that work for them. In assessing this area during supervision NSA staff should consider where possible whether there are conflicting priorities between safety management and other business processes.

Level 1 - Inadequate

Procedures and safety objectives are out of date or have not been communicated within the organisation and there is little evidence of understanding of them.

There is no evidence of employees being consulted on safety issues and employees are disconnected from management.

The safety management system exists at a very simplistic level, (for example whilst human factors are considered the system in place for doing so is weak) and it is disconnected from the day to day business of the organisation.

There is little evidence of any interest in safety issues from the management chain, production is more important. Resources to deal with risk management issues are hard to come by as the organisation does not value the importance of using them in this way.

There is little recognition of the importance of the role that people play in delivering a safe, efficient and high-quality level of operation.

Management's commitment to safety culture is lacking and there is little knowledge in the organisation of the concept of safety culture or why safety culture is important to achieve a safe and efficient organisation. Safety is perceived as separate from the business goals of the organisation and is defined in terms of compliance with regulations and technical or procedural solutions. Safety is managed and directed by a standalone safety department which is perceived as being primarily responsible for the organisation's safety culture. Management's commitment to and communication of safety goals and priorities is limited to the extent that they are unknown in the organisation. Safety is perceived as something that has to be done, rather than something benefiting the organisation. There is little leadership in the pursuit of a positive safety culture.

Incidents and accidents 'will happen' – a fatalistic culture predominates. Human error at the sharp end is always identified as the cause with no attempt made to take investigations further. There is no just culture and personnel involved in incidents and accidents are frequently made scapegoats. Management and employees are generally uninterested in safety and may only use safety as the basis for other arguments, such as pay, working hours etc.

The level of performance is below that for minimum legal compliance and the NSA should therefore be considering how the organisations performance can be brought up to the minimum required.

Level 2 - Coping

There is a disconnect, between safety related processes and business processes.

Resources are provided by the Leadership but are not enough to deliver the commitment to make a positive contribution to the safety and culture of the organisation.

Leadership is recognized as significant for the management of safety but how this is reflected in the SMS appears to be a little inconsistent and confused.

Safety is seen as a business risk that may impact negatively on the organisation's financial goals. Safety is defined in terms of compliance with regulations and technical or procedural solutions. The general approach to safety is reactive from senior management to shop floor. Management's commitment is seen as half-hearted, reacting when something has gone wrong rather than taking proactive steps to improve things.

The human and organisational factors strategy is endorsed by the Leadership and it is reviewed occasionally. However, this is driven by a need for legal compliance rather than a realisation of the importance of managing human and organisational factors to sustain and develop the performance of the business. As a consequence the resources and other support necessary to support the strategy are in reality not in place.

At this Level the organisation is meeting the minimum level that you would expect for the granting of a single safety certificate or safety authorisation.

Level 3 - Consistent

Level 2 plus employees are actively involved in reviewing and revising the safety policy and safety targets and how they are applied.

The beginning of development of a positive safety culture can be observed. Human and organisational factors knowledge and methods are being considered in a systematic manner in developing the organisation's business processes. The management adopt a consistent and generally positive approach to the discussion of and provision of resources for human and organisational factors matters.

Safety is seen by management as important but production sometimes takes priority. Safety basics are in place and the organisation is turning towards a proactive prevention perspective rather than rules and regulations compliance. The organisation knows that involvement of all personnel is important for further improvement and the majority are willing to contribute positively. The majority of the workforce accept personal responsibility for their own safety. Safety is driven by campaigns and supervisory control, mainly top-down but with some workforce involvement.

The safety management system is consistent in controlling the majority of risks that the organisation is exposed to.

Level 4 - Anticipating

Level 3 plus safety targets are supported by the actions of everyone acting in the management chain.

There is a realized commitment to continually improving the efficiency and effectiveness of risk controls. There is evidence of extensive collaboration throughout the management chain. There is evidence that safety risks are considered when looking at business risk.

Policies at senior level are:

- *Reviewed and revised to drive improvements in a predictable way; and*
- *Interpreted in the same way by all parts of the organisation that apply them.*

Outward looking and seeking to improve; the organisational culture is a generally positive one and there are opportunities for staff in some areas to contribute pro-actively to the development of the safety management system.

Resources are made available for the management of safety but there are a few minor constraints.

Management understands that safety and productivity are intertwined and safety takes first priority when in doubt. Management is committed to safety and allocates significant resources to proactive safety measures such as risk assessments, incident and accident investigations and management of change processes. The importance of safety is recognised throughout the organisation and the workforce is positively engaged in safety initiatives. Safety performance is focused on both leading and lagging indicators using all data available.

Human and organisational factors matters are integrated into everything the organisation does and this is supported by top management.

Level 5 - Excellence

Level 4 plus the safety policy includes corporate safety objectives, which are cascaded within the organisation. There are procedures to allocate sufficient human, economic and technical resources

to support the achievement of those objectives and the leadership monitor the implementation of the necessary safety requirements. The effectiveness of the safety policy is evaluated and the results are taken into account in the next revision. Safety targets are used to challenge the organisation to achieve business performance and manage business risks that are in line with the best performance of the best-performing organisations within and outside the railway sector.

There is a recognition that managing safety risks is not a separate function but an integral part of a productive, competitive and profitable organisation.

Safety risks are recognized as a risk to whole business performance and the safety management system is effective in controlling existing risks and predicting new ones.

Safe production is the top priority and safety is linked to business performance. Management's commitment to safety is high and the organisation makes every effort to find stronger and more sustainable solutions to safety problems. Lessons learned are applied on a daily basis. Employees understand and support safety initiatives and that safety is a way of life. The organisation promotes safety at work and home and allocates appropriate resources to do so.

The organisations management are seen as leaders on the development of the management of human and organisational factors matters across the business and in the wider sector.

4.2.2. L2 - Safety policy

Effective safety policies set a clear direction for the organisation to follow. They contribute to all aspects of a business's performance as part of a commitment to continuous improvement. The safety policy is an important document for showing how the organisation manages its safety responsibilities and its leadership and commitment for the proper management of safety.

Level 1 - Inadequate

The policy statement is out of date or has not been communicated within the organisation.

There is no evidence of employees being consulted.

There is little recognition of the role that people play in delivering a safe and efficient level of operation.

The safety policy does not give a commitment to comply with regulatory standards.

The Level of performance is below the minimum standard that should be expected.

Level 2 - Coping

The safety policy is up to date and is communicated within the organisation, but local managers and supervisors have inconsistent approaches or interpretations. This results in the policy being applied in different ways across the organisation.

The policy is not seen as vital to maintaining safety.

There is some recognition of the value that improving understanding of the human role can bring to the business, but this is inconsistent.

The safety policy gives a commitment to comply with legal requirements.

The level of performance meets the minimum level of requirement to be granted a single safety certificate or safety authorisation.

Level 3 - Consistent

Level 2 plus the safety policy and other associated policies are used as a focus for managers, which results in them being interpreted in the same way by all staff.

Employees are actively involved in reviewing and revising the safety policy and how it is applied.

There is a clear focus on human factors issues within the organisation and a recognition of the important role that humans play in delivering a safe and efficient organisation and delivering business objectives.

Level 4 - Anticipating

Level 3 plus the safety policy is consistent with the actions of everyone acting in the management chain.

The safety policy includes a realized commitment to continually improving the efficiency and effectiveness of risk controls. There is evidence of extensive collaboration throughout the management chain recognizing the value of the human in delivering improved performance.

The human factors capability is measured, tailored and proportionate to the maturity and complexity of the organisation and focused on improvement over time.

The safety policy and any associated policies are:

- *Consistent with each other;*
- *Reviewed and revised to drive improvements in a predictable way; and*
- *Interpreted in the same way by all parts of the organisation that apply them.*

Level 5 - Excellence

Level 4 plus the safety policy is used to challenge the organisation to achieve business performance that is in line with the performance of the best-performing organisations.

The safety policy recognizes that managing safety risks is not a separate function but an integral part of a productive, competitive and profitable organisation.

Safety risks are recognized as a risk to business performance.

The role of the human is recognized as being integral to the success of the organisation and is considered at each review of operational and business development.

The organisation is outward looking and seeks external opportunities to develop its efficiency and effectiveness and considers human factors issues in doing so.

4.2.3. L3 - Roles, responsibilities and authorities

The purpose of this requirement is for the organisation being supervised to demonstrate the organisation is structured and how the responsibilities are allocated to meet the organisation's corporate targets and safety policy. There may be layers of work that support this from policy and strategic perspectives.

Risk controls should fit sensibly into management structures so that it is clear where responsibilities lay. They should also recognize and deal effectively with the risks posed by interfaces with contractors, partners and suppliers.

These elements are key to understanding how well the organisations safety management system controls risk. The applicant should demonstrate how they assign competent staff to activities, how they ensure that those staff have a clear understanding of their roles and responsibilities and how people are held accountable for their performance. That the organisational structure and individual's roles and responsibilities strike a balance between compliance and a culture of safety - a thinking culture rather than safety being driven purely by compliance for compliance sake.

Level 1 - Inadequate

The organisation's management structures bear no relation to its safety objectives, so staff responsibilities and accountabilities are easily confused.

Where delegation of responsibilities occurs the staff are not given the authority or resource to carry them out. Some staff given responsibilities may not be aware of them or have the required competence to carry them out. Job descriptions do not accurately reflect the way people actually carry out their roles and responsibilities.

The allocation of roles and responsibilities across the organisation is haphazard and not linked to the operational goals of the organisation.

The level of performance is below that which should be expected from a holder of a single safety certificate or safety authorisation.

Level 2 - Coping

There is a description of the structure of the organisation including the allocation of roles and responsibilities within the safety management system. Plans are in place to identify how work is actually done within the organisation.

The structure of the organisation means that most risks are managed by the people or teams carrying out the work, but some risks are split so that there is, or could be conflict between safety and other objectives.

There appears to be little consistency between the activities of individual business units or with the wider aims of the organisation's business objectives.

There appears to be little consistency in the organisational structures, the allocation of responsibilities and the associated culture necessary to deliver them effectively.

The organisation is meeting the minimum level of compliance to be granted a single safety certificate or safety authorisation.

Level 3 - Consistent

Level 2 plus the organisational structure across different elements is consistent with responsibilities clearly allocated across business units.

Overall policies and procedures covering roles and responsibilities are consistent with those of the relevant business units.

There are criteria to delegate and allocate responsibilities and tasks where the necessary competence and skills are identified. These criteria are applied and therefore safety tasks are clearly allocated and the staff carrying them out have the appropriate competence, authority and resources to deliver them.

Where delegation of responsibilities is carried out there is a systematic approach to how this is done. The staff are competent and are given adequate resources and the authority to carry them out.

Where new or changed roles and responsibilities are being considered there is analysis of human factors matters in relation to the change and the way that duties are actually carried out within the organisation.

Level 4 - Anticipating

As for Level 3 above, but with clear links between the elements of the organisational structure from the top to the bottom of the organisation, not just at working levels.

Overall policies and procedures are designed to complement each other across the business units to promote the strategic objectives of the organisation.

Staff with safety responsibilities are held accountable for their performance in a fair and consistent manner. The culture of the organisation allows staff with safety responsibilities to influence how the tasks are carried out and improvements made.

As a result of understanding how the work is actually carried out there is an alignment of individual and collective efforts to operational performance goals.

Level 5 - Excellence

As for Level 4 with the addition of effective reviews of the organisations structure roles and responsibilities, at all levels, against the achievement of strategic and business objectives.

A formal review process is in place to ensure that roles and responsibilities remain valid, up to date and integrated with the changing organisation, strategy and environment. The organisation consistently considers the human within the system as a standard part of the review process.

4.2.4. L4 - Consultation of staff and other parties

Successful organisations will actively involve the workforce to encourage them to use their knowledge and experience and build commitment to achieving shared objectives. Such organisations will actively support and encourage involvement and consultation in different ways.

Examining this aspect will also give an indication to the supervising authority what the safety culture is like within the organisation and how actively they involve relevant third parties in managing safety in areas where the risk is shared.

Level 1 - Inadequate

There is little or no consultation.

Employees do not understand how they contribute to their own safety and to the safety of those people they work with.

The organisation is not meeting the standard to be expected for minimum legal compliance.

Level 2 - Coping

Employees understand that they are responsible for their own safety and that of colleagues but this is not consistent across the organisation.

There is some consultation on health and safety matters, but it does not appear to be carried out in a systematic way nor it does it involve all employees.

The organisation is meeting the minimum legal standard that would be expected of a holder of a single safety certificate or safety authorisation.

Level 3 - Consistent

Level 2 plus the organisation has procedures for making sure that employees are consulted on safety matters.

Employees understand how they contribute to their safety and the safety of the railway and they get feedback on their contribution.

People in similar roles apply standards in the same way.

Level 4 - Anticipating

Level 3 plus the organisation has a policy of seeking to involve employees at all levels of the organisation, and there is a clear structure through which it can communicate this policy. Workers and employees are consulted when decisions on risk control measures are made.

The organisation regularly consults its workforce in a range of ways, such as through surveys, workshops, meetings with managers and safety tours.

Employees are motivated to deliver the business objectives and demonstrate a consistent understanding of how this is achieved.

Employees feel able to make decisions within a goal-setting framework.

People in similar roles apply standards consistently.

Employees understand the need for change and confirm that they are consulted on how changes are introduced.

Level 5 - Excellence

Level 4 plus the organisation makes full use of its employees' potential and those of other interested parties and actively involves them to develop shared values and a culture of trust openness and empowerment.

The organisation uses the involvement of employees to gather ideas for improvement and put them into practice.

Employees show that they understand how they contribute to achieving the organisation's goals. That understanding is consistent with the organisation's relevant policies and the vision of the senior team.

Employees show a commitment to exceeding those goals by following existing processes and indicating where they can be improved.

4.3. PL - Planning

Purpose

To make sure that the organisation is able to define and implement risk controls that enable the business to operate safely. That it plans its operations safely and with due regard for the welfare of its own employees and others affected by its activities.

Introductory notes

Good planning is the starting point for the management of risk. The organisation should have proper procedures in place to allow the organisation to meet its legal obligations and to perform as a business meeting its objectives efficiently and effectively. Good planning will significantly improve the way an organisation manages safety by making sure that there are the right resources including competent staff to carry out tasks. This will lead to effective risk control and efficient working.

4.3.1. PL1 - Risk Assessment

This element goes to the heart of the SMS, it is aimed at getting the applicant to show how their systems identify and control the risks they face. Supervision should be used to get the applicant to show how they use the results of the risk assessment in practice to improve risk control and how they check this over time. It is important to remember that this element does not deal directly with managing the risks from changes (which is another element) but it is related to it. It should also be noted that there is a specific requirement to address via risk assessment issues related to human performance such as job design and fatigue risk management. From a supervision perspective therefore evidence should be sought that these issues are addressed within the risk assessment process.

The systems associated with planning risk controls and putting them in place should be coordinated to make sure that they comply with relevant laws and allow the organisation to meet its objectives efficiently and effectively.

Level 1 - Inadequate

The company has a process for assessing risks but it is not consistently adopted and updated with the result that old operational rules or practices are used to control risks when the risk has changed.

Risk assessments are not completed or reviewed for all relevant activities of the business.

Risk assessments are inappropriate for their intended use. There is clear misunderstanding of the purpose of risk assessments and how to conduct them.

The risk controls are poorly used and little monitoring is carried out on the effectiveness of the controls that are in place.

The risks arising from human factors issues do not appear to be considered during risk assessment. There is no perceived business need to address such issues.

The organisation is performing at a level which is below that expected of a holder of a single safety certificate or safety authorisation.

There is little evidence within the risk assessment process that safety risks including those arising from human and organisational factors are adequately considered when managing change.

Level 2 - Coping

Risk assessments are completed, but overall coordination is a concern.

Control measures within an activity do not always include the measures identified by the risk assessment.

Risk assessment is often only used to demonstrate that the risk controls already in place are adequate.

Risk assessments are only used to identify where risk controls are needed, but controls are not adequately put in place by the organisation.

Training has been provided on risk assessment to all staff members who need it at the appropriate level required for different levels of responsibility.

There is evidence of the use of risk controls and the monitoring of them.

There is recognition that human factors issues should be considered during risk assessment but the way this is applied is a concern. As a consequence such issues are not controlled as well as they should be through the SMS.

There is some evidence that safety risks including human and organisational factors issues are considered within the change management process.

The organisation is performing at the minimum level of compliance for a holder of a single safety certificate or safety authorisation.

Level 3 - Consistent

Level 2 plus the organisation has clear policies on using risk assessments and what risks will be tolerated and why this is acceptable.

Risk management is used in a consistent way in different parts of the organisation including within the change management process. Managers understand their role in the process.

There is effective use of the risk-controls and removal of risk at source.

Co-ordination of assessments is consistent and they are regularly reviewed.

Risks and associated control measures are clearly communicated to staff.

Risk assessment procedures form part of the change management process.

There is a simple system in place for checking the effectiveness of risk controls introduced as a result of risk assessment on a regular basis.

There are consistent processes in place to identify the risks associated with human and organisational factors during the risk assessment process. Where necessary the business can draw on specialist expertise to facilitate this.

Level 4 - Anticipating

Level 3 plus - risk assessments are built into other aspects of the business to make sure there is a systematic approach to risk control.

All levels of the workforce, and outside organisations, can contribute to risk assessments.

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Risk assessments, including removing risk at its source, are part of the change process and the culture of the organisation.

Reviews form part of the risk assessment process.

Risk management principles are intelligently applied at all levels.

There is a more complex system in place for checking the effectiveness of risk controls introduced as a result of risk assessment on a regular basis.

Human and organisational factors issues are fully integrated into the SMS processes for risk assessment and change management. Those responsible for carrying out risk assessment are given feedback on their performance.

Level 5 - Excellence

Level 4 plus risk assessment is used to drive continual improvement in the risk profile of the organisation.

The approach to risk management is embedded and applied consistently throughout the organisation. Risks are thoroughly assessed and considered well in advance of any change taking place.

Removing risk at its source is part of a consistent approach and is reflected in the organisation's policies.

There are pro-active procedures in place for developing risk control measures in conjunction with other entities with responsibility for risk control where there are cross-cutting issues.

The human and organisational factors information from risk assessment is used across the business to drive continuous safety improvement. The results of the assessments are where relevant shared with contractors, partners and suppliers as part of the aim of developing the efficiency of the organisations operations.

4.3.2. PL2 - Safety objectives and planning

To ensure that the organisation meets legal requirements and ensures continual improvement in safety, is communicated to staff and believed in by the management it is necessary to have safety objectives which meet 'SMART' (see below) requirements.

The organisation must demonstrate that they have meaningful objectives and a process to implement and monitor the success in delivering them during their lifespan. Safety objectives need to be 'Specific, Measurable, Achievable, Realistic and to a Suitable Timescale' (SMART). Both short and long-term objectives should be set and prioritized alongside wider business objectives. Conflicting priorities should be managed so that safety objectives do not suffer in relation to other business needs. Objectives set at different levels or for different parts of an organisation should be aligned so they support the overall objectives of the organisation's policies. Personal targets can also be agreed with individuals to make sure objectives are met.

Level 1 - Inadequate

There are few or no safety objectives

Any safety objectives that exist are not SMART or prioritized.

Failure to meet safety objectives is tolerated and no action is taken to address deficiencies in meeting them.

Personal targets are not related to the objectives of the organisation's overall policies.

The organisation is performing at a level below that expected of a holder of a single safety certificate or safety authorisation.

Level 2 - Coping

There are safety objectives. Some may be SMART and prioritized, but objectives within different parts of the organisation are not clearly aligned and may be in conflict with each other and as a consequence do not always support the overall objectives of the organisation's policies.

Personal objectives are mainly aligned with the objectives of the organisations overall policies.

There are checks on progress with the achievement of safety objectives.

The organisation is meeting the minimum standard expected for legal compliance.

Level 3 - Consistent

Level 2 plus safety objectives are set and a safety plan exists which illustrates how the organisation will achieve its objectives.

The safety objectives set take into account applicable legal and other requirements.

Attempts are made to set SMART objectives and to prioritize objectives and targets and bring them in line with each other.

Systems are in place to follow up on achievement of objectives.

Achievement of objectives is not well aligned to the review process, i.e. reviews do not take account of the set objectives.

Staff are aware of the relevance and importance of their activities and how they contribute to the achievement of safety objectives and planning to manage safety risks.

Level 4 - Anticipating

Level 3 plus objectives are SMART, prioritized and in line with each other to support the overall policy.

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The safety management system makes sure that safety objectives are set and achievement is measured.

Achievement or non-achievement is recorded and used to help with continual improvement.

Systems are in place to follow up on potential and actual non-achievement of safety objectives.

Level 5 - Excellence

Level 4 below plus, the organisation compares its performance against that of others, within and outside the rail industry, to make sure that the objectives represent excellence.

4.4. S - Support

Purpose

The purpose of this requirement is to make sure that the organisation devotes enough resource including competent staff to allow its SMS to control risk in accordance with its objectives.

To set out roles and responsibilities for meeting the organisation's safety objectives.

To make sure that important information is available for those making decisions.

To make sure that the organisation's arrangements and actions promote a culture that makes excellence in risk control possible.

Introductory notes

The safety management system documentation must be rigorously controlled, managed and regularly reviewed so that only the latest version of any particular document required for safety control is in current circulation. Any changes to documentation made as a result of the process of continual improvement in risk control must be implemented in a timely fashion.

It is critical that the Safety Management System includes a comprehensive and implemented Competence Management System and that proper communication arrangements are in place both from management to staff and vice versa and to others who rely on communication from the organisation to manage the safety of their own organisations. This is because these elements support the efficiency and effectiveness of the SMS. Having competent people in post carrying out the tasks that are required of them minimises the risks of errors of judgement being made which undermines the workings of the SMS. At the same time making sure that the communications system both from the top down and the bottom up through the organisation will ensure that key messages are heard in a timely manner by the right people.

4.4.1. S1 - Resources

The effective use of Resources is a key element in any Safety Management System. It is not enough to have processes in place they also have to work and this will require the provision of enough resources to allow this to happen efficiently and effectively.

Level 1 - Inadequate

The organisation provides resources to allow the Safety Management System to function but this is not done in any systematic way instead it appears to be a piecemeal approach. The result is that the spread of resources across the organisation is uneven with some parts having enough resources and some too few.

The organisation has fallen below the level that would be expected of a holder of a single safety certificate or safety authorisation.

Level 2 - Coping

At this level the organisation is better able to manage resources to allow the completion of tasks. The allocation of resources is considered an important element of the safety management system. The leadership of the organisation reviews resources on a regular basis.

The organisation is performing at the basic level that should be expected of a holder of a single safety certificate or safety authorisation.

Level 3 - Consistent

Level 2 plus at this level the organisation can demonstrate that there are enough resources and the allocation of these are consistent across all the parts of the business. The absence of certain staff is not a significant issue as this is dealt with within the SMS processes. The organisation is starting to think about how it can make more efficient use of resources.

Level 4 - Anticipating

As for Level 3 but here the organisation is anticipating the future needs of the organisation so that it is prepared in advance for forthcoming changes and has the resources in place to manage this.

Level 5 - Excellent

Level 4 plus here the organisation is managing resources in a very pro-active way using them flexibly across the organisation in the pursuit of greater safety and efficiency.

4.4.2. S2 - Competence

It is essential for the management of staff with safety responsibilities over time that an organisation has a competence management system, which forms an element of the Safety Management System. It is through this mechanism that the skills of employees are evaluated, developed, maintained and monitored so that safety is not compromised.

Organizations need an effective system for managing competence to help make sure that their staff have appropriate competencies. An essential part of any Competence Management System (CMS) is maintaining competence. This involves a comprehensive continuous professional development (CPD) programme where more experienced staff can learn about new safety developments and ensure that they comply with them.

How the competence management system operates can reveal a lot of information about the safety culture of an organisation. A well thought out competence management system will be inclusive of the staff who actually carry out the work and therefore who best understand the task having input into the design of the CMS thus helping both the individuals and the organisation perform better. A functioning CMS is a key indicator of an organisation's safety culture.

Level 1 - Inadequate

The Competence Management System is documented but not clearly implemented it is not linked to the design of job tasks. There is a confused approach to how to manage the competence of staff.

Staff may or may not be competent but there is no consistent process for identifying this.

Training needs are managed haphazardly with immediate needs prioritized over long term development.

The organisation is performing at a level below that expected of a holder of a single safety certificate or safety authorisation.

Little or no attention is paid to the competencies necessary to allow people to be effective at managing human and organisational factors or safety culture issues within the organisation.

Level 2 - Coping

Training takes place in individual business units largely 'on the job', within a competence management system. There is the minimum level of compliance with legal requirements for recruitment, selection and training. There is a selection process in place for safety critical roles.

Recruitment, selection and training policies are not part of a coherent system and are not linked to the strategic objectives of the organisation, and go little further than satisfying legal requirements.

There is some identification of training needs including for addressing human and organisational factors and safety culture issues but training allocation is often by chance and dictated by availability of both the training and the relevant personnel rather than as part of a structured approach.

The organisation meets the minimum level of compliance expected of a holder of a single safety certificate or safety authorisation.

Level 3 - Consistent

Level 2 plus the organisation has an effective documented competence management system in place. This covers the competencies needed to meet the strategic objectives of the organisation and to manage risks. The organisation is able to make full use of the competencies of its staff where it knows these.

The organisation is able to organize and develop training programmes for its staff performing safety critical duties which ensures that relevant needs are met and the competence of staff maintained.

Back to work arrangements exist for staff following accidents/incidents or long absences from work including identifying the need for additional training where this is required.

Recruitment and selection processes are comprehensive (e.g. psychometric and task based) and largely consistent and they generally select appropriate people for the various roles required.

The training regime is delivered by competent people to a defined programme based on the needs of a particular role. Training includes responses to normal and degraded modes of operation.

There is an understanding of the need to link the competence management system with the design of the task.

The competencies necessary for managing human and organisational factors and safety culture issues are understood and relevant staff are recruited with the correct skills.

Level 4 - Anticipating

Level 3 plus policies on recruitment, selection and training have clear links with the strategic objectives of the organisation which themselves cascade down to individual staff objectives. They are based on an accurate assessment of tasks (task analysis), which feeds a clear and coherent competence management system. Mentoring is used and changes of role are well thought through.

The training regime is comprehensive and linked to the required competencies needed to function effectively in particular roles.

Recruitment processes are comprehensive and focused on the optimum skill set for a particular role. They are backed up by periodic review (as well as reviews when personnel leave the organisation), to make sure that as the organisation changes and develops the correct people are recruited.

The organisation is clear about what human and organisational factors and safety culture needs it requires and has processes in place to make sure it has the staff with the required skills and the means to maintain these over time.

Level 5 - Excellence

Level 4 plus the organisation understands the competencies of its staff and makes full use of its employees' potential. The organisation actively involves them through shared values and a culture of trust, openness and empowerment.

The organisation uses employee involvement to gather ideas for improvement and put them into practice. Human resource planning is carried out to ensure business continuity.

There is a forward and outward looking vision which aims to ensure that the correct people are recruited and given appropriate training and development to ensure that skill sets are maintained at a level which allows the organisation to grow and develop whilst maintaining and improving safety performance.

The organisation is a leader in developing its staff with the necessary skills to deliver high quality performance on human and organisational factors and safety culture issues.

4.4.3. S3 - Awareness

Awareness means making the staff aware of the safety policy of the organisation and how they contribute to safety within the organisation, the hazards and risks that they need to be aware of and the outcomes of accident and incident investigation. It also covers making staff aware of the implications of not contributing towards the implementation of the Safety Management System both from their point of view and that of the organisation. This element therefore provides important information about the safety culture of the organisation.

Level 1 - Inadequate

Here the organisation has made the Safety Policy available to staff and passes on some basic information about risks and hazards. The outcomes of incident investigation are not systematically communicated to all staff and there is no coordinated attempt to verify that staff understand what their responsibilities and those of the organisations are and as a consequence the safety culture is poor..

The organisation's performance is below that expected for legal compliance.

Level 2 - Coping

At this level there is more information passed on to staff but it is appears to not be in a consistent format and the messages given are not clear across the organisation. The organisation attempts to ensure that the staff understand their role in developing safety within the Safety Management System.

The organisations performance meets the minimum level expected of a holder of a single safety certificate or safety authorisation.

From the information gathered it is apparent that the safety culture of the organisation is weak with significant variations across the organisation.

Level 3 - Consistent

Level 2 plus the process of communication of the safety policy to staff and the communication to the staff of their roles is consistent and the messages are understood by staff. Some monitoring is carried out to make sure that staff have absorbed the information and they understand the importance of their role in making sure that the SMS functions effectively.

The safety culture of the organisation appears to be consistent but there are still some gaps and it is not developing.

Level 4 - Anticipating

As for Level 3 plus the organisation is pro-actively seeking to promote awareness of its roles and responsibilities and those of staff. The organisation is actively seeking to promote the benefits to staff themselves of improved safety performance.

The organisation is actively promoting the monitoring development and improvement of its safety culture as a part of the means of ensuring that the SMS delivers the required outcomes.

Level 5 - Excellent

As for Level 4 plus the organisation seeks to improve awareness not only within its own staff about the organisation and their responsibilities but also seeks to communicate this to its contractors, suppliers and others with whom it has an interface.

The organisation is seen as a leader in the positive safety culture that exists within it. Staff are engaged and understand their responsibilities and roles and pro-actively support the business in achieving its goals.

4.4.4. S4 - Information and communication

Compliance with this element is designed to show that the applicant has demonstrated within their application that they have in place the appropriate means to identify safety related information at different levels and to communicate it at the right time and to the right people. That they horizon scan to ensure current risk controls remain relevant and up to date and can identify new threats and opportunities from external influences, (political, social, environmental, technological, economic and legal). That they are able to make sure that it reaches the appropriate staff (particularly safety critical staff) within their organisation who need to react to it. This will include how they supply relevant safety related information to other interested parties with whom they interface.

The arrangements should make sure that any member of staff making a decision or performing a task has the right information, in the form of:

- Corporate messages on the importance of safety;
- Procedures to exchange information with the relevant stakeholders
- Procedures and standards related to safety;
- Factual data and intelligence; and
- Instructions and reports.

Level 1 - Inadequate

There is little attempt to communicate appropriate safety information. If procedures are in place, staff make decisions based on their own judgement.

Little information on safety is collected or shared.

Managers do not talk to non-managerial staff or do so ineffectively.

Sharing of information and communication within the organisation is haphazard and not traceable.

There is little recognition of the important role that effective communications plays in influencing human behaviour and consequently safety performance.

The organisation falls below the level expected of a holder of a single safety certificate or safety authorisation.

Level 2 - Coping

Procedures and standards relating to risk controls are available to staff.

Some information received from staff is used to guide decisions.

Managers give instructions and receive reports relating to controlling risks, but there appears to be some lack of consistency.

There is some recognition of the importance of safety critical communications in the delivery of safe operational performance. There is evidence of the development of assurance plans to check this.

The organisation performs at the minimum level expected of a holder of a single safety certificate or safety authorisation.

Level 3 - Consistent

Level 2 plus written business objectives, standards and procedures for controlling and communicating significant risks are in formats suitable for users.

Factual information is used to share experiences and guide future performance and decisions.

Managers give instructions, which reinforce procedures to help achieve safety objectives.

Staff report their performance and experiences because the organisation encourages them to do so.

Communication within the organisation is regular and to a defined procedure both up and down the management chain.

Roles and responsibilities for people with duties to communicate information across the organisation should be clearly defined.

Monitoring and assessment of communications is carried out on a regular basis.

Level 4 - Anticipation

Level 3 plus everything is in line with the main risk-control systems.

The right information is available for making decisions.

Effective procedures for gathering feedback are in place where appropriate to make sure that communications are understood and that they understand staff reaction to the communications.

Relevant staff are provided with feedback on their performance in a positive and non-discriminatory manner.

Communications are monitored and the results used to inform an organisation wide communications programme.

Level 5 - Excellence

Level 4 plus the quality of communications and the arrangements for them are kept under regular review against identified good practice in other sectors. Information is pro-actively shared with organisations with which the undertaking has an interface, as well as with contractors.

The exchange of information is documented.

There is an outward looking communications vision which is shared both internally and externally with relevant partners, suppliers and contractors.

The role of human factors within communication is clearly understood and the organisation has a clear aim to continuously improve communications performance.

4.4.5. S5 - Documented information

Excellent organisations provide a reliable record of important decisions, and information gathered over the years, to demonstrate that they are controlling risk at all levels.

In order to make sure that information on risk control, work processes and the learning from audits and incidents is communicated to the relevant employees in a timely and efficient manner an organisation must have a document management and control system which delivers this.

This element includes the safety management system documentation, creating and updating documents and the control of documented information.

Level 1 - Inadequate

The SMS documentation is drafted. It does not cover all the activities of the company and it is not regularly updated following any type of change which would require it to do so.

The documentation is not properly distributed or shared. The organisation does not use the SMS as "working instructions" but the operational practices are different and often linked to the personal memories of the staff and employees and historical practice without reference to the passage of time and changes which may be required as a result.

The documentation is used only for certification/authorization purpose.

Document control systems are weak leading to different parts of the business using different versions of documents.

The organisation falls below the level of performance expected of a holder of a single safety certificate or safety authorisation.

Level 2 - Coping

The railway undertaking/infrastructure manager is normally working in accordance with the procedures and instructions set-up in the SMS. Some deviations are possible. There are some records of information on important risk controls, but the records are inconsistent.

There is an annual safety report, which is submitted to the National Safety Authority which includes the organisational structure, the safety targets for the following year and why these have been chosen. It will also include information on internal accident and incident investigation, details on the safety indicators chosen to monitor performance against targets and whether there are any open National Investigation Body recommendations.

The document control system is generally reliable but there are still issues with version numbering and updating documents in a systematic manner.

The organisation is performing at the minimum level expected of a holder of a single safety certificate or safety authorisation.

Level 3 - Consistent

Level 2 plus there are records of processes and standards for the main risks.

Records are kept of important information and decisions that are likely to be valuable in the future.

There is a description of the safety management processes related activities and the interaction between these processes within the SMS. Staff implement the safety management processes in a consistent manner.

There is an overview of contractual processes and other business agreements including details of how safety risks are controlled. There is a current list of contractors, partners and suppliers with a description of the type and extent of the service provided which is updated whenever new tasks are assigned

The document management system is reliable and capable of ensuring that only the current version of a document is in circulation.

Level 4 - Anticipating

Level 3 plus comprehensive records of safety related processes, the risks associated with them and standards, decisions and information are available to users and decision-makers.

Document control is sophisticated enough to flag up when documents are going to need updating and who is responsible for this.

Level 5 - Excellence

Level 4 plus making more use of the process to drive the efficiency and effectiveness of the management system. The SMS reflects the actual operational practices of the railway undertaking/ infrastructure manager. The SMS is a living document which continually evolves to improve safety and not an administrative burden.

Document control systems work towards improving and developing the SMS and are seen as a useful tool in ensuring consistency of purpose for the SMS.

4.4.6. S6 - Integration of human and organisational factors (HOF)

Level 1 - Inadequate

There is an HOF strategy, but there are a lot of gaps and it does not cover all the relevant processes. The HOF strategy is not adapted to the organisational structure and processes. There are documented processes for HOF in some areas but not for all, e.g. there are no methods for integrating HOF in risk analyses or accident investigation. There are few descriptions of HOF roles and responsibilities, HOF competence is lacking and resources are not allocated to HOF. The HOF strategy and the HOF processes that are in place are not fully applied in practice. Design of equipment, workstations, operational systems and tools are implemented with limited consideration of user needs. There is reliance on manufacturers' commercially available procedures with minimal or no tailoring the specific needs of the business and non-users are developing procedures with no user involvement. There is little consideration of user needs in the working environment.

Level 2 - Coping

There is a recognition that risks from human performance need to be identified but this is not done consistently across the business. The HOF strategy covers all relevant processes within the organisation, however the structure is unclear and the processes of some HOF areas are better described than others. It is not clear when and how HOF should be applied. There are descriptions of allocated HOF roles and responsibilities, but there are not enough resources allocated. There is lack of understanding in the concept of HOF and when and how HOF methods should be applied. HOF strategy and HOF processes are applied when required, but arguments are raised that it is not needed. The HOF strategy is not seen as important to achieve safety and efficiency in the organisation.

Level 3 - Consistent

Level 2 plus there is recognition of the value that human and organisational factors expertise can bring. Human and organisational factors is a known concept for everyone in the organisation and everyone understands the importance of using a systematic approach to human and organisational factors to achieve safety efficiency in the organisation. A systematic HOF approach is applied in all parts of the organisation. HOF strategy, processes and methods are mostly, but not always, applied and resources are allocated to HOF. HOF competence requirements regarding different roles are described and fulfilled. HOF are considered in change management. HOF is a known concept for everyone in the organisation and everyone understands the importance of using a systematic approach to human and organisational factors to achieve safety and efficiency in the organisation.

Level 4 - Anticipating

Level 3 plus a systematic HOF approach is consistently applied in all parts of the organisation. The HOF approach is a natural part of all processes. The focus is not on fulfilling the legal HOF requirements, but instead on applying the HOF approach in a way that meets the company goals. Everyone in the organisation sees the benefits for safety, efficiency and quality in applying a HOF approach. The HOF capability is measured, tailored and proportionate to the maturity and complexity of the organisation and focused on improvement over time. Human and organisational factors measures are used in the design process to validate new interfaces and tools, and changes to automate or new automated functions are assessed in specific human factors studies. Human factors methods, e.g. task analyses and usability analysis, are used as an input into the design, structure and content of procedures, and full scale simulations involve current operational staff to optimise procedures. The human and organisational factors capability is measured, tailored and proportionate to the maturity and complexity of the organisation and focused on improvement over time.

Level 5 - Excellent

Level 4 plus the organization is a beacon for other organisations in how it presents itself. It is clear about its own character and its legal responsibilities and seeks to develop this building on its strengths and drawing on experience not just from the rail industry but beyond. The organization is an active promoter of the importance of addressing human factors issues in safety management. The role of the human is recognized as being integral to the success of the organisation and is considered at each review of operational and business development. Users are at the centre of the design process. The organisation is outward looking, learns from stakeholders and other industries, and seeks external opportunities to develop its efficiency and safety and considers human and organisational factors issues in doing so.

4.5. OP - Operation

Purpose

The correct management of operational activities, interfaces and change will allow an organisation to meet its' legal responsibilities, respond flexibly to changing circumstances and to instil positive behaviours in its employees. This will in turn allow the organisation to meet its business objectives and needs.

Introductory notes

This section comprises the parts of the SMS, which deal with interfaces (with contractors, suppliers and emergency services for example), the management of assets over time and the management of change. It is critical for any organisation to manage these areas efficiently and effectively for the benefit of the business as a whole. It is the part of the SMS which deals with the practical aspects of running a railway undertaking or infrastructure manager. There are clear links in this section to the overall monitoring of the effectiveness of the SMS. This area also comprises those sections of the business with the greatest capacity to produce reputational damage, through the inadequate management of contractors, suppliers or interfaces. This section also has strong links to the Technical Specification of

Interoperability – Operations, TSI-OPE, which specifies fundamental operating procedures to be followed across functional areas of operation. Since National Safety Authorities must verify compliance with the TSI-OPE it is necessary to check these elements during Supervision.

4.5.1. OP1 - Operational planning and control

The organisation must ensure that technical and operational requirements resulting from risk assessment take into account the relevant Technical Specifications for Interoperability relating to the operations and traffic management sub-systems. Where national rules are applicable these are met by the planning, implementation and review of the appropriate operational processes.

A high performing organisation will have robust systems in place to achieve compliance with technical and operational prescriptions and have a culture which supports this and will always be looking to improve through consideration of innovation in the railway sector and across other industries.

Level 1 - Inadequate

Operational activities are carried out without reference to longer term strategies and other business needs. Where operational activities involve the competence and management of staff this is dealt with in a haphazard manner.

The risk assessment processes are not properly applied to operational activities. There is little or no design of the procedures reflecting operational control issues so that they reflect the reality of the job and not an idealised version of it as a result human and organisational factors issues are not really considered in operational delivery.

The organisation falls below the level expected of a holder of a single safety certificate or safety authorisation.

There is limited or no compliance with the Fundamental Operating Principles set out in the TSI-OPE.

Level 2 - Coping

The organisation takes into account relevant Technical Specifications for Interoperability and national rules where relevant but this is not systematic and additional measures are not clearly based on the results of risk assessment.

Staff are aware of the local roles and responsibilities for the operational activities which affect them but are not involved in the planning or organisation of them.

Some design of operational work procedures particularly safety critical ones is carried out but this is not systematic so there is some human and organisational factors consideration but this is generally weak.

The organisation is just meeting the minimum conditions for legal compliance expected of a holder of a single safety certificate or safety authorisation.

The TSI-OPE is complied with but at the minimum acceptable level.

Level 3 - Consistent

Level 2 plus the risk assessment process when applied to operational activities consistently takes into account the management of processes and procedures designed to ensure that train paths for example are planned appropriately and that the risks associated with the staff who e operate them are adequately covered.

The competence management, information and communications processes are applied consistently to operational processes.

There is a consistent process for making sure that procedures reflect the reality of the task. Human and organisational factors matters are considered consistently across the organisation.

The TSI-OPE is complied with consistently across the Operations of the organisation.

Level 4 - Anticipating

Level 3 plus there are systems in place for managing operational activities which are based on risk assessment across the whole organisation. These systems take into account the dynamic effects that operational activities in one area of operation (e.g. the signalling requirements will have an impact on how necessary track maintenance is delivered), have on another area and try and anticipate these to remove risk.

Staff across the organisation embrace a culture which allows them to contribute positively to operational activities and any changes that are made to them.

Communication and information sharing on operational activities is robust and the effectiveness of the process is monitored by senior management.

Operational procedures include interface arrangements between different tasks and this includes contracting roles. Some data collection is carried out which is used to determine human performance. There is a pro-active approach to identifying and managing human and organisational factors issues across the organisation.

The Fundamental Operating Principles set out in the TSI-OPE are starting to be used as a means of driving a dynamic Operations element in the Safety Management System.

Level 5 - Excellent

Level 4 plus the organisation is continually looking for ways to improve its operational activities by 'horizon scanning' within and outside the railway industry. Staff at all levels are involved with this process and can contribute to it.

The organisation is pro-active in assessing advances in the understanding between procedures and the task reality and seeks to use these to improve the safety and efficiency of its operations. As a result human and organisational factors are well managed and the organisation is seen as a leader in the field.

The Fundamental Operating Principles set out in the TSI-OPE are an integral part of safe train operation and are actively promoted by the organisation as good practice amongst their peers.

4.5.2. OP2 - Asset management

Successful management of assets involves identifying the assets the organisation owns and manages. It also includes having systems in place to make sure that assets remain in a good condition during their lifecycle and are only used in their intended area of operation, so the organisation can meet its business objectives safely, effectively and efficiently. This section refers specifically to all Safety Critical assets. Reference to asset management means in this context the management of the lifecycle of the asset from design to disposal. Finally, the organisation should demonstrate that it has applied a human centred approach at each stage of the asset life cycle.

Level 1 - Inadequate

Active and reactive maintenance is carried out to schedules but there is no comprehensive asset register, so the organisation cannot be sure that all assets are maintained in a safe condition.

Assets are designed with limited reference to future maintenance needs, human factors implications or the ability to dispose of the asset safely when the life –cycle is complete.

There are few or no criteria for the design of new equipment.

The asset maintenance plan has gaps within it so that it is not possible to have confidence that the asset has been correctly maintained over its lifespan.

Information on the state of the asset is exchanged but it is incomplete.

The system in place for management of assets addresses conformity with the essential requirements for interoperability where this is appropriate.

Whilst people are trained there is little evidence that there is a comprehensive competence management system.

The management of asset registers is not up to date

There is no system for recording restrictions on use and the system for removing and returning items to service is incomplete.

Asset design concentrates on commercial availability rather than reflecting the needs of the user.

The organisation falls below the level expected of a holder of a single safety certificate or safety authorisation.

Level 2 - Coping

There are schedules for inspecting and maintaining most, but not all assets.

Frequencies of inspections are specified but not always on a risk basis.

Failure to meet frequencies of inspection is not-clearly managed and so there are backlogs developing.

The overall policy on managing assets does not clearly aim to improve safety. Some assets are designed with reference to safety benefits including addressing human factors issues but these are isolated examples and do not form part of a comprehensive plan.

The asset inspection process itself drives the asset management not the asset condition. Information is shared but does not give a complete picture of the asset from design onwards. Information on how and when to dispose of the asset is limited.

There is a better asset register with indications of the application of restrictions on use for equipment returning to service.

Design relies upon a mixture of common sense, operational experience and personal preference rather than a structured approach.

The organisation is just meeting the minimum conditions for legal compliance expected of a holder of a single safety certificate or safety authorisation.

Level 3 - Consistent

Level 2 plus the asset register is up to date, and inspection and maintenance schedules are based on risk and are followed.

There may be some backlog of inspections, but this is recognised and managed with mitigation measures in place to reduce the risk.

There is some reviewing of the frequency of inspections, and some ability to adapt to changes to the condition of assets.

Assets are used for the purpose intended whilst maintaining their design operating state and addressing issues of operation in normal and degraded states. Design records exist for most assets which include consideration of human factors and information from these forms part of the baseline against which inspections are carried out. Most assets have disposal plans with a clear path to managed removal from the asset base.

Available human factors design standards and best practices are used. There is a test regime for design which includes human factors issues. End users have a stake in the requirements definition and testing process. Management of change processes (see 4.5.4. OP4 – Management of Change) include human factors issues as part of the consideration of the design.

Level 4 - Anticipating

Level 3 plus the frequency of inspections is reviewed systematically, is risk based and the system allows flexibility for it to adapt to changes in the condition of assets over the short and long term.

Design records exist for all assets and all assets have a clear path to managed disposal. There is a clear mechanism for incorporating information about changing asset condition within the process for managing assets and disposing of life expired assets.

Rather than reacting to change in asset condition the organisation seeks to be aware in advance of the changing condition of assets using for example remote asset monitoring and is able to put in place the necessary resources to manage this.

The organisation has a clear plan for the design and management of future assets which improves safety.

Feedback from end users on existing designs is used to plan new assets. Human factors considerations are an integral part of the process of design.

Level 5 - Excellence

Level 4 plus reviews of inspection frequencies and schedules include information from outside the organisation or the rail industry.

The organisation looks to develop its asset management policies following industry and global best practice in the field.

The organisation has a comprehensive asset management system which follows assets from design through service to disposal. The organisation applies the latest asset management thinking to ensure that safety is improved and developed over time.

Remote asset management systems give detailed information on the state of all assets and this feeds into the organisations risk management policies to maintain the asset in an appropriate condition.

There is a comprehensive competence management system which develops staff responsible for asset management making sure that they are appropriately trained and have the necessary knowledge and skills to carry out the work for which they are responsible .

Designs are based on an intimate knowledge of what the asset is for and how it is used. The organisation seeks to use best practice in human factors to acquire introduce, maintain and dispose of assets.

4.5.3. OP3 - Contractors, partners and suppliers

Organisations need to manage effectively the safety of their contractors, partners and suppliers and those affected by their activities, wherever those activities are carried out.

This is not simply a question of risk assessment and neither does it require a list of all risks or categories of relevant risk, but it requires the applicant to show how its systems and procedures as a whole are designed and organised to facilitate the identification, assessment and control of these risks. The use of well written contracts is a generally accepted way to manage risks. However, the prime responsibility for managing contractors and checking their delivery against the set specifications rests with the railway undertaking/ infrastructure manager. The use of contractors or sub-contractors does not mean that the railway undertaking/infrastructure manager delegates any of their responsibilities for ensuring that the contracted services are carried out to the standards specified before operation.

The applicant should demonstrate that it has processes in place to determine the competence of contractors and other suppliers and to assess their safety performance as part of its procurement process.

The main elements of contractor control include:

- A clear definition of contractual arrangements
- Giving a clear specification of the job;
- Choosing the contractor;
- Making the contractor familiar with the site (if appropriate);
- Control of product safety and quality;
- Permit to work (if appropriate);
- Handover at the end of the job; and
- Monitoring and reviewing performance.

The absence or incompleteness of any or all of the elements above will be an important input for decision making at the level of the maturity of an organisation.

Level 1 - Inadequate

The potential impact on the safety performance of the company of using a contractor is not assessed and the consequent organisational changes are not managed properly. The organisation makes little attempt to identify or collaborate on work with other organisations in respect of shared risk controls. Contractual arrangements where they exist do not take safety constraints into consideration and the contractor is not aware of its safety responsibiities. Procedures to achieve this are weak or do not exist. Culturally there is a tendency not to share information appropriate for the control of risk.

No information is collected or shared and this is not required in the contractual arrangements.

Contractors are appointed when needed. However, when contractors are chosen there are few considerations other than cost. For instance, previous contractor's safety performance is not a selection criteria during the procurement process. There is a little planning of the work and little consideration of the responsibilities for risk control when deciding how to do the work.

There is little monitoring of the contractors, or review of the completed contract. The human and organisational factors strategy does not really exist and what is there does not cover contractors, partners and suppliers.

The organisation falls below the level expected of a holder of a single safety certificate or safety authorisation.

Level 2 - Coping

Procedures actually identify interfaces between business units at a working level. There is liaison with the other organisations over procedures and standards to be implemented but this is not systematic. These are used by staff for some shared risk controls, which at this level have been identified.

Some elements of a risk control system are in place for contractor control, but there does not appear to be a systematic process from selection through to post contract review.

The organisation is just meeting the minimum conditions for legal compliance expected of a holder of a single safety certificate or safety authorisation.

The human and organisational factors strategy does not adequately cover contractors, partners and suppliers.

Level 3 - Consistent

Level 2 plus organisational interfaces with contractors, partners and suppliers are systematically identified.

Procedures and standards are in place to control shared risks with which party is responsible for what clearly identified.

There are written objectives for system safety and those are considered when drafting contractual arrangements.

There is a regular discussion with other organisations with which there are interfaces, to agree objectives, standards, processes and arrangements.

There are ways to share information at working level.

Communications outside the organisation are satisfactory to make sure that anyone making a decision relating to risk controls with cross organisational boundaries is in possession of the right information (in the form of procedures and standards), factual data and intelligence and instructions and reports.

The importance of contractor control is recognised and this is reflected in the organisation's relevant policies.

Contractors are chosen on their ability to complete work safely and to a satisfactory standard.

The contractor's performance is monitored during the contract, and appropriate performance measures are used effectively to track achievement.

The human and organisational factors strategy covers relevant issues concerning contractors, partners and suppliers and this translates into an understanding of their roles and responsibilities in managing their staff.

Level 4 - Anticipating

Decisions and arrangements are consistent with the full range of information given in Level 3.

There are arrangements for sharing information throughout the organisation in order to promote effective reviews and continual improvement.

There is a systematic approach to contractor control.

Effective prequalification arrangements take a balanced approach, including considering the safety performance of potential contractors.

There is a clear understanding of responsibility at all stages of the contract work. Good working relationships between the client and all contractors are delivered through effective interface arrangements including through the human and organisational factors strategy which is used as a focus for the organisations relationships with its contractors, partners and suppliers.

Performance measures and post-contract reviews guide decisions on the choice of contractors for further work.

There is a system to ensure the necessary traceability of relevant decisions, communications, etc.

Level 5 - Excellence

Level 4 plus the organisation looks to other sectors and countries to identify system safety issues and developments to feed into their contractor, partner and supplier management arrangements, where appropriate.

Teamwork between the contracting undertaking and their contractors, partners and suppliers is used to get the best possible achievement of shared objectives.

Good practice is shared with other organisations including contractors, partners and suppliers.

The contractor supply chain seamlessly delivers all the organisation's objectives.

The contractor's main and safety activities are in line with the organisations'

There is no difference in the treatment of contractor's employees and the company's own employees – all receive the same training and information to ensure their safety. The human and organisational factors strategy is built in such a way that it applies equally to all parties.

4.5.4. OP4 - Management of change

The purpose of change management is to make sure that changes within an organisation are, adequately planned, made in accordance with EU requirements and checked to help the organisation achieve its business objectives. Effective change management will control the risks created by the change and will help the organisation to make the right decision to improve its business without any loss in terms of safety.

The process should allow for risks to be assessed in a proportionate and robust manner including human factors matters where appropriate as well as for reasonable control measures to be adopted.

Level 1 - Inadequate

Some types of change are recognised and aspects of it are managed.

Not all risks associated with a change are identified and so are not considered.

The effect the change has on the organisation's culture is not considered.

The organisation falls below the level expected of a holder of a single safety certificate or safety authorisation.

Level 2 - Coping

The importance of change management is understood and there is some degree of control over all types of change.

Changes are planned but are not always adequate.

The system for planning for changes is not clear, which leads to risks being identified or controlled following a change rather than before it takes place.

There is little consideration of the effects a change has on the organisation's culture.

Roles and responsibilities for managing change and the associated safety risks are not clearly defined.

The organisation is just meeting the minimum conditions for legal compliance expected of a holder of a single safety certificate or safety authorisation.

Level 3 - Consistent

Level 2 plus there is an efficient approach to managing any process, organisational and engineering change.

There may be a structured approach to change, involving a number of steps in the change management system.

There is a consistent approach to risk assessment and risk control before and after a change is made. Risk assessment is a critical part of the change management process.

Level 4 - Anticipating

Level 3 plus a review is carried out after a change is undertaken to consider also the effect the change has had on the culture of the organisation.

There is a comprehensive issues log to capture developments as they occur during the change.

The importance of involving employees in the change process is recognised to bring benefits.

There is a procedure for planning, implementing and controlling changes to the safety management system as they occur during the change.

The importance of involving employees in the change process is recognised to bring benefits.

The change management process includes the effects of proposed changes on partners, supplies and others with which the organisation has an interface.

Level 5 - Excellence

Level 4 plus there is also an understanding that change affects other aspects of the business. It leads to business risk being linked with safety risk during and as a result of any change.

Assumptions made about and during the change are tested and proper contingency measures are put in place in case they prove not to be accurate.

4.5.5. OP5 - Emergency management

Robust systems for emergency planning are essential for any duty holder and must cover the information that needs to be supplied to the emergency services to enable them to draw up their major incident response plans.

Elements of emergency planning include:

- Identifying foreseeable emergencies that could arise,
- Developing arrangements to respond to those emergencies;
- Providing adequate training and making sure that the necessary resources are available; and
- Testing of plans, with other people and organisations where necessary.

Level 1 - Inadequate

There is little organisational identification of possible emergencies and how to respond if they arise.

The organisation relies on the emergency services to deal with all aspects of an emergency and does not have any arrangements in place with other actors who may be involved in the management of a major incident other than to call them and let them deal with the event.

The organisation falls below the level expected of the holder of a single safety certificate or safety authorisation.

Level 2 - Coping

The organisation follows rules and practices requested by external bodies/organisations such as the infrastructure manager or other railway undertakings and has in place a system to manage emergencies.

Major emergencies that could arise are identified and there are some plans in place to deal with them.

Staff are trained in emergency response only when strictly necessary.

There are emergency response procedures often produced by other bodies/organisations and adopted internally.

The organisation is just meeting the minimum conditions for legal compliance expected of a holder of a single safety certificate or safety authorisation.

Level 3 - Consistent

Level 2 plus potential emergencies arising from tasks are identified as part of risk assessments.

Control measures, including training and resources, are in place to deal with emergencies and shared with relevant parties.

Joint emergency-response exercises take place with other organisations involved in a task.

Comprehensive emergency response procedures exist which involve other organisations such as the emergency services or local authorities as appropriate

Level 4 - Anticipating

Level 3 plus with feedback from exercise debriefings being taken into account when procedures are reviewed to make sure emergency responses remain up to date and effective.

There is regular liaison between the organisation, the emergency services, and other actors involved when major incidents occur to ensure that changes to processes/procedures and technical matters are properly considered and altered through the change management process.

Level 5 - Excellence

Level 4 plus the organisation adopts good practice in emergency management particularly in interface co-ordination, both within and outside the rail industry. Regular liaison with emergency services is pro-active with the aim of developing better joint response for any future incidents.

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4.6. PE - Performance Evaluation

Purpose

The aim is to make sure that risk controls are in place, working correctly and achieving the organisation's objectives.

Introductory notes

Organisations need to measure the effectiveness of risk controls to make sure that risks are identified and managed in practice. Safe systems of work must be monitored to make sure they are appropriate and are actually being followed. Systems for monitoring, auditing and reviewing performance should be in place to make sure that the safety management system is working correctly.

An audit checks that the organisation is doing what it says it will do. It should be supported by regular reviews to make sure that the organisation's business objectives are correct. The review should also check that the arrangements put in place to meet the business objectives are working as intended.

Monitoring, audit and review form a feedback loop within the overall safety management system, and are an essential part of programmes for continual improvement and achieving excellence.

4.6.1. PE1 - Monitoring

The organisation should be able to demonstrate that it has in place a process for monitoring the application and effectiveness of the safety management system and that this process is appropriate to the size, extent and type of its operation. The organisation should demonstrate that the process can identify, evaluate and correct any defects in the functioning of the SMS.

Level 1 - Inadequate

There is no effective process in place to set up safety targets and to collect and analyse data. There is little or no understanding of whether risk controls in place are working effectively.

There is no perceived business need to manage and measure human and organisational factors issues. Where they are considered it is on an ad hoc basis.

The organisation falls below the level expected of a holder of a single safety certificate or safety authorisation.

There is no recognition of the need to oversee the safety culture of the organisation.

Level 2 - Coping

Monitoring is implemented but this is often ad hoc: some processes are supervised and some equipment is inspected, this leads to an inconsistent approach in data collection.

Records are isolated and are not analysed at company level. The consequence is an approach to action plans which are not clearly defined and are not coordinated at company level.

There is no clear link between safety policy, corporate safety targets and action plans for improvements.

The need to monitor risk controls is not acknowledged by the management and it is left to single departments or units to decide what information to collect.

There is a recognition that human and organisational factors can play a role in business performance but application is not consistent.

The organisation is just meeting the minimum conditions for legal compliance expected of a holder of a single safety certificate or safety authorisation.

Limited monitoring of the safety culture of the organisation takes place.

Level 3 - Consistent

Level 2 plus the organisation attempts to apply the applicable Common Safety Method to check the correct application of the Safety Management System and all the processes and procedures within it and implements any necessary corrective actions required as a result of non-compliances identified.

Monitoring is process driven, so critical and vulnerable systems are not prioritised over the monitoring of less critical or vulnerable systems. Measuring takes place for the sake of it and not with a clearly defined purpose.

The link with risk assessment is limited to the identification of risk controls, which are then monitored in a logical way.

A monitoring strategy is defined and plans are developed to implement it. This leads to a consistent approach in collecting and analysing data, information is used by the management to make decisions and to improve the organisation.

Allocation of resources on monitoring is not prioritised in accordance with the results of risk assessment.

There is an accepted process as part of performance evaluation for examining the impact of human and organisational factors issues within the SMS. Where necessary there is access to specialist expertise to evaluate this.

A consistent safety culture monitoring process has been implemented.

Level 4 - Anticipating

Level 3 plus an understanding of the monitoring of essential and vulnerable systems.

The relevant CSM is fully applied and monitoring is fully risk based. Critical processes have priority in resources allocation.

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Managers and supervisors are well-trained and have the necessary resources, and there is evidence of challenge of existing systems of work to identify any failings in approach.

Middle and senior managers monitor outcomes on a risk basis and action plans are coordinated and discussed at company level. The aim of monitoring is to predict the degradation of safety performance and to seek areas for improvement and not only to measure the outcomes of the SMS.

There are specific indicators for evaluating the influence of human and organisational factors on the application of the SMS and to track the assurance process.

The safety culture monitoring process is run on a regular basis and feeds the improvement of the safety culture strategy for continuous improvement.

Level 5 - Excellence

Level 4 plus use of advanced tools for monitoring. The organisation has tools to support workers in reporting occurrences and to propose solutions to be discussed in the action plans.

Data analytics is considered a competitive advantage and monitoring safety performances is part of a global monitoring process which includes all the units and departments. The organisation has a comprehensive data management system to map its assets and the conditions of use.

The company acknowledges the importance of using risk models and sharing data and information with other railway operators to enlarge their data sets and improve data quality for risk assessment.

Reporting is good practice and there are innovative projects supported through the safety culture improvement strategy to support a strong safety and reporting culture within the company.

Monitoring procedures are reviewed to make sure they remain relevant to the organisation's risk profile.

Data from the assurance of human and organisational factors issues is an integral part of continuous improvement within the organisation. The outputs are then used in making business and safety management decisions. The information gained is shared with partners, suppliers and contractors.

The safety culture monitoring process is an exemplar for how such activities should be carried out both within the organisation and beyond.

4.6.2. PE2 - Internal auditing

An internal audit is a crucial independent and systematic check of risk-control systems and management arrangements which aims to make sure that business objectives are being met. Internal Audit is also required under the CSM on Monitoring. Audits are generally designed to try and limit subjectivity in favour of a more evidence based approach. The systematic

nature of an audit in the SMS context is intended to give the senior management some clear evidence on which to base decisions to improve safety performance.

Level 1 - Inadequate

There is little or no evidence of audits being carried out.

Audits that are carried out are not planned or prioritized, and the findings are not acted upon.

Auditors are not consistently trained and the links to the CMS process are incomplete.

The audit process is not structured, there is no real difference between audits and inspections.

The organisation falls below the level expected of a holder of a single safety certificate or safety authorisation.

Level 2 - Coping

There is some auditing, but the techniques used and areas covered do not take account of the nature or importance of the particular risk control system.

There are plans for audits but these are not coordinated.

The organisation is just meeting the minimum conditions for legal compliance expected of a holder of a single safety certificate or safety authorisation.

Level 3 - Consistent

Level 2 plus there is evidence of a coordinated, effective and planned approach to audits. Audit activity is focused on achieving compliance with legislation and meeting business objectives.

Audits are systematically documented and the results recorded. The organisation's Board is aware of the results and discusses these at regular Board meetings.

The competence management system includes provisions for training the auditors. A register of competent auditors is maintained.

Level 4 - Anticipating

Level 3 plus audit activities are planned and prioritized taking into account the results of previous audits and the results of monitoring.

An appropriate combination of audit techniques is used to provide information on performance against business objectives.

Top management are informed about the results of the audits, so that they are in a position to review the safety management system. At this level the Continual Improvement required by the SMS is itself subjected to analysis to test whether the improvements actually deliver the expected benefits or need modifying to enhance the results.

Level 5 - Excellence

Level 4 with the addition that the business objectives against which the audit is conducted are more challenging and there is a comparison with best practice.

Peer to peer auditing objectives are included.

4.6.3. PE3 - Management review

Strong safety leadership from management is essential for the efficient and effective working of an organisations safety management system as well as its continued development over time. The organisation should demonstrate that the management are actively involved in reviewing the performance of the safety management system and developing it for the future. Management review can be considered part of the monitoring that an organisation carries out to ensure that its processes and procedures deliver the intended outcome.

Level 1 - Inadequate

There is little analysis of the findings of monitoring and audits by top management. This is done more at unit/department level.

Business and safety objectives are not regularly reviewed.

The organisation falls below the level expected of a holder of a single safety certificate or safety authorisation.

Level 2 - Coping

The reviews carried out are not part of an ordered approach to improvement. They are often reactive and not often planned as part of the management cycle.

The organisation is just meeting the minimum conditions for legal compliance expected of a holder of a single safety certificate or safety authorisation.

Level 3 - Consistent

Level 2 plus management automatically uses findings from monitoring and audits to review the organisation's performance and make changes where necessary.

Recommendations from reviews are clearly allocated, tracked and show that the wider implications are considered.

Level 4 - Anticipating

Level 3 plus learning the lessons from incidents in other organisations and other industries.

Management asks for suggestions from staff as to improvements in business processes and reviews these to see whether they would make a difference to the business.

Level 5 - Excellence

Level 4 plus management institutes random reviews of practices in particular areas of the business with the aim of testing whether processes and procedures are still fit for purpose.

Management engages in 'horizon scanning' with the aim of identifying new technologies or ideas, which can improve the business. For instance use of big-data is considered to improve business efficiency and safety performance.

4.7. I - Improvement

Purpose

Organization's must develop over time as if they do not they will stagnate and become complacent. This will eventually have consequences for the management of safety. The organisation should embrace a philosophy of learning from its mistakes and those of others to improve its safety management controls. The philosophy behind Improvement is to focus the organisation on forward thinking, trying to anticipate change in the future and ensuring that when it does occur it results in the SMS developing in a positive manner.

Introductory notes

An organisation can improve through learning from its own accident and incident (including incident and dangerous occurrences) investigation as well as learning from other events which occur in the railway sector or other industrial sectors. Organizations should also investigate near misses with the same thoroughness that they would investigate an accident so that they learn what nearly occurred, how the situation arose and how a similar occurrence could be avoided. Summaries of investigations and their outcomes should be shared across the organisation and with other similar organisations as far as possible. Organizations should be proactive in seeking to learn to improve not just through learning from accidents and incidents but through any other relevant available source of information such as monitoring and audit or the experience of others which might help it to improve.

4.7.1. I1 - Learning from accidents and incidents

The accident and incident investigation should review the performance of the safety management system in the lead up to the event and ascertain what parts of the system worked well and what areas required improvement including any lessons learnt about human performance. The organisation should also seek to learn from the results of investigations by the National Investigation Body, (NIB's) other NIB's across the EU and from incident and accident investigation worldwide.

Level 1 - Inadequate

There is little evidence of effective investigations, and the culture of the organisation is to find someone to blame. There is no learning from the investigation of incidents that occur outside the

organisation or in other industries. The competence of people carrying out investigations can be questioned.

There is little or no indication that the role of the human in accident or incidents is properly considered.

The organisation falls below the level expected of a holder of a single safety certificate or safety authorisation.

Level 2 - Coping

Incidents are investigated but there is little guidance on how or what to investigate.

Immediate causes are investigated.

The range of incidents investigated is largely limited to accidents and recommendations arising from investigations are limited to preventing the same thing happening again. They do not identify areas for wider improvement.

There is some attempt to learn from other accidents in other parts of the industry.

Staff who carry out investigation have received some training but they are not part of an effective competence management system.

There is a recognition that human and organisational factors plays a role in accidents and incidents and some attempt is made to explore this in investigation but this is often lost when the reports are signed off at management level.

The organisation is just meeting the minimum conditions for legal compliance expected of a holder of a single safety certificate or safety authorisation. Whilst there is a recognition that these issues can play a role in accidents and incidents the focus is still on blaming individuals rather than addressing systemic organisational failures.

Level 3 - Consistent

Level 2 plus there are standard arrangements for when and how investigations are carried out.

The underlying cause of an incident is investigated and investigations are also carried out after an incident.

Staff have received comprehensive training in accident and incident investigation and are part of a competence management system.

The human and organisational factors aspects of accidents and incidents are a standard aspect of the investigation process. Management consider these as important as other causes of an event and work to correct problems when these arise. There is a strong emphasis on the idea of a 'just culture' where the focus is on identifying what went wrong rather than finding someone to blame.

Level 4 - Anticipating

Level 3 plus the quality of investigation produces recommendations that can be applied both within and outside the organisation.

The range of incidents investigated includes, where appropriate, disruptions to work and where expected outcomes are not achieved.

Top management are informed of the results of investigations and the recommendations and arrange for them to be implemented as appropriate.

Recommendations from incident investigations in other railway undertakings or businesses outside the organisation are studied to see whether there are relevant outcomes for the business.

The organisation seeks to learn human and organisational factors lessons from its own and other investigations within the railway industry and beyond and to address these within its SMS. The organisation promotes itself as a 'just' organisation and there is no 'blame' culture in reality.

Level 5 - Excellence

Level 4 plus an understanding of the implications of the findings from other organisations investigations.

There is a willingness to learn from incidents through changes to behaviours across the business.

Top management is involved in disseminating its own experiences to other businesses in the railway sector and beyond and acts on lessons learnt from other railway undertakings or other industries.

The organisation seeks to promote the human and organisational factors lessons it learns from accidents and incidents and its' emphasis on a 'just' and learning culture to its partners, suppliers and contractors, the wider railway sector and beyond.

4.7.2. I2 - Continual improvement

The organisation needs to show that they are seeking to improve all the time through learning from events, contact with regulators and other routes. During supervision organisations will be expected to demonstrate that they have a process for identifying and implementing positive changes to their SMS including through the continual improvement strategy for Safety Culture. Corrective action is concerned with the definition, the allocation and the completion of actions identified as being required following monitoring, investigation, audit and review.

Level 1 - Inadequate

Despite the processes and procedures in the SMS, monitoring, audits and reviews result in little or no change, either because none are carried out or they are not followed up.

The organisation falls below the level expected of a holder of a single safety certificate or safety authorisation.

Incidents and accidents 'will happen' – a fatalistic culture predominates. There is no real strategy for continual improvement of the Safety Culture. Human error at the sharp end is always identified as the cause with no attempt made to take investigations further. There is no 'just' culture and personnel involved in incidents and accidents are frequently made scapegoats. Management and employees are generally uninterested in safety and may only use safety as the basis for other arguments, such as pay, working hours etc.

Level 2 - Coping

Simple findings from monitoring, investigation, audit and review give rise to simple actions and changes to low levels of the safety management system. There a few attempts to look for underlying issues across the organisation from a systematic review of information gained from monitoring, investigation and audit.

The organisation is just meeting the minimum conditions for legal compliance expected of a holder of a single safety certificate or safety authorisation.

The safety department is perceived as being responsible for safety but management puts time and effort into incident and accident prevention since these are seen as preventable. A continual improvement strategy for safety culture exists and it covers the right general areas however, corrective actions primarily address human error by employees at the sharp end through punishment or other means, to reduce unsafe behaviour since these are seen as the causes of incidents and accidents so the culture is not always 'just'. Safety performance is measured in lagging indicators, such as Lost Time Injuries, medical injuries, derailments, SPADs etc. The organisation has more serious incidents and accidents than its competitors.

Level 3 - Consistent

Level 2 plus a process is in place to make sure that the necessary actions identified by monitoring, audits and reviews are implemented and identify who is responsible for the actions and the timescales for carrying them out.

There are procedures in place for monitoring the suitability, adequacy and effectiveness of the safety management system taking into account the framework set out in the applicable Common Safety Method and these produce consistent results.

Corrective action will be at any level of the safety management system.

Management recognise that incidents and accidents are caused by multiple factors some originating from management decisions. Serious incidents and accidents are investigated and a systematic process for lessons learned has been started. There is a consistent strategy for the continual improvement of safety culture which is well constructed and capable of being properly assessed for success. The organisation operates a 'just' culture.

Level 4 - Anticipating

Level 3 plus but with mechanisms for tracking progress and closure of corrective actions.

Corrective actions are linked to objectives set out in the safety management system.

The outputs of safety targets and planning, risk assessment, involvement of staff and other parties, information and communications, monitoring, auditing, management review and learning from accidents and incidents are used as a basis for developing strategies and plans for continual improvement.

Root cause analysis is conducted for all incidents and accidents and there is an acceptance that most originate in management decisions. There is an understanding that everybody is responsible for not just their own safety but also that of their colleagues. Management and employees treat each other with respect and a systematic approach to ensure fairness is in place. A healthy lifestyle is promoted and non-work accidents are monitored. The strategy for continual improvement of the safety culture and for operating a 'just' culture follows best practice with realistic and measurable objectives.

Level 5 - Excellence

Level 4 plus the corrective actions lead to management review of similar processes outside the immediate area where the incident occurred to identify any similar deficiencies which exist and any changes which should be made.

Prevention of incidents and accidents causing physical or psychological injury to employees or third parties is an organisational priority. The organisation has not experienced any recordable incident or accident for years but there is no feeling of complacency. Behavioural or organisational drifting is monitored continually and actions initiated to prevent this happening. The organisation applies a range of leading indicators to monitor performance. The strategy for continual improvement of the safety culture and the way that the organisation implements a 'just' culture is considered by peers as leading in the field following best practice from within and outside the railway sector.

A questioning attitude permeates the organisation where changes are subjected to comprehensive scrutiny.

ANNEX

Guide to levels

Table 1: Commentary on the application for a single safety certificate

Maturity Levels	Level 1	Level 2	Level 3	Level 4	Level 5
Title	**Inadequate**	**Coping**	**Consistent**	**Anticipating**	**Excellent**
Brief Definition	At this level the organisation that is being assessed has a Safety Management System but it is clear that there are deficiencies which bring the level of performance below that which was required for the granting of a single safety certificate or safety authorisation. Procedures and instructions to manage safety activities exist but during supervision it is apparent there are serious issues about how coherent these are as a whole. Individual risks are controlled however, the overall process that manages this is weak. The organisation operates in practice in a manner in which there appear to be major inconsistencies with that described in the Safety Management System (SMS). Policy, procedures and instructions appear to be applied in ways that do not correspond with those set out in the SMS and therefore the risks from operations delivered by the organisation or its contractors are not necessarily being adequately controlled. At this Level the NSA should be considering action to bring the organisation back into legal compliance (see the Agency Enforcement Guide for further information on how this process could work).	At this level the organisation is performing at the level of minimum legal compliance i.e. the SMS works at a level which was sufficient for a single safety certificate or safety authorisation to be granted at the assessment stage. The written safety management system exists and is being used to control safety risks however, there is a lack of structure and co-ordination. The system is coherent overall but there are gaps and some inconsistencies of approach in different areas. The organisation is substantially coping with its safety responsibilities, but only just. It would not take much to create a significant issue and fall back into Level 1 because the lack of integration between procedures and risk management can become a significant issue in the case of technical, operational and organisational risks. Some areas within the business are performing better at safety management than others. Risks are controlled more by the actions of the people who work for the organisation rather than through the design of the SMS. A fire-fighting approach to risk management is the normal state of affairs making the company operate reactively to accidents or incidents rather than pro-actively taking measures to prevent them.	The Safety Management System has developed to create a systematic and consistent approach to the management of risk. All the elements are in place and function and all aspects of safety are considered. Some consideration is given to safety culture within the organisation. Whilst the organisation is consistent it does not try to anticipate risks in advance nor is the culture within it developed enough to self-sustain the process of risk management. Fire – fighting has given way to a more considered approach to risk management but it would not take very much (e.g. a failure to manage key processes or procedures over time) for the organisation to fall back into a coping mode.	As for Level 3 and in addition, the Safety Management system is constantly managing risk pro-actively. Here the organisation monitors precursors for risk and takes action in advance to prevent hazardous incidents arising. The organisation is committed to developing safety culture the workforce is engaged with the business in managing safety in a coherent and forward thinking manner. At this level there is real leadership from the top of the organisation and the staff within it believe in and respect the approach of the management. A lot of effort goes into regular reviews of performance and to understanding the nature of the risks the organisation faces and what can be done about it.	As for Level 4 and in addition, the written safety management system is constructed in a manner which allows for continuous improvement. The organisation actively seeks out opportunities to improve safety and positively develop its safety culture using information from both within the railway sector and from outside it. The organisation benchmarks its own performance against others both within the railway sector and outside. There is evidence that the organisation is aware of issues it has or may have in the future and is actively seeking to address them through the SMS. At this level the organisation is confident of its ability to manage the risks it faces and is looking outward to educate those with whom it has interfaces and is seeking to learn lessons from other fields which can be incorporated within the business. Safety is an integral part of the business of the organisation.

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Guidance for Safety certification:

- Application guide for the granting of single safety certificates – A guide for the applicants
- Application guide for the granting of single safety certificates – A guide for the authorities
- Safety management system requirements for safety certification or safety authorisation
- Supervision guide
- **Management maturity model**
- Enforcement management model
- Coordination between national safety authorities – A common approach to supervision
- Competence management framework for authorities

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