2016 IIA Interim Capability Assessment

Version 1.0

A report for Network Rail
from Asset Management Consulting Limited (AMCL)

The Institute of Asset Management PATRON
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AMCL+

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Executive Summary

This report documents the findings of an independent assessment of Network Rail's Asset Management capability maturity at the issue of the Initial Industry Advice (IIA) for CP5. It identifies changes in Network Rail's current Asset Management capability maturity with the position identified at the End of CP4. The assessment was undertaken by Asset Management Consulting Limited (AMCL), the Independent Reporter for Asset Management, on behalf of the Office of Rail Regulation (ORR) and Network Rail.

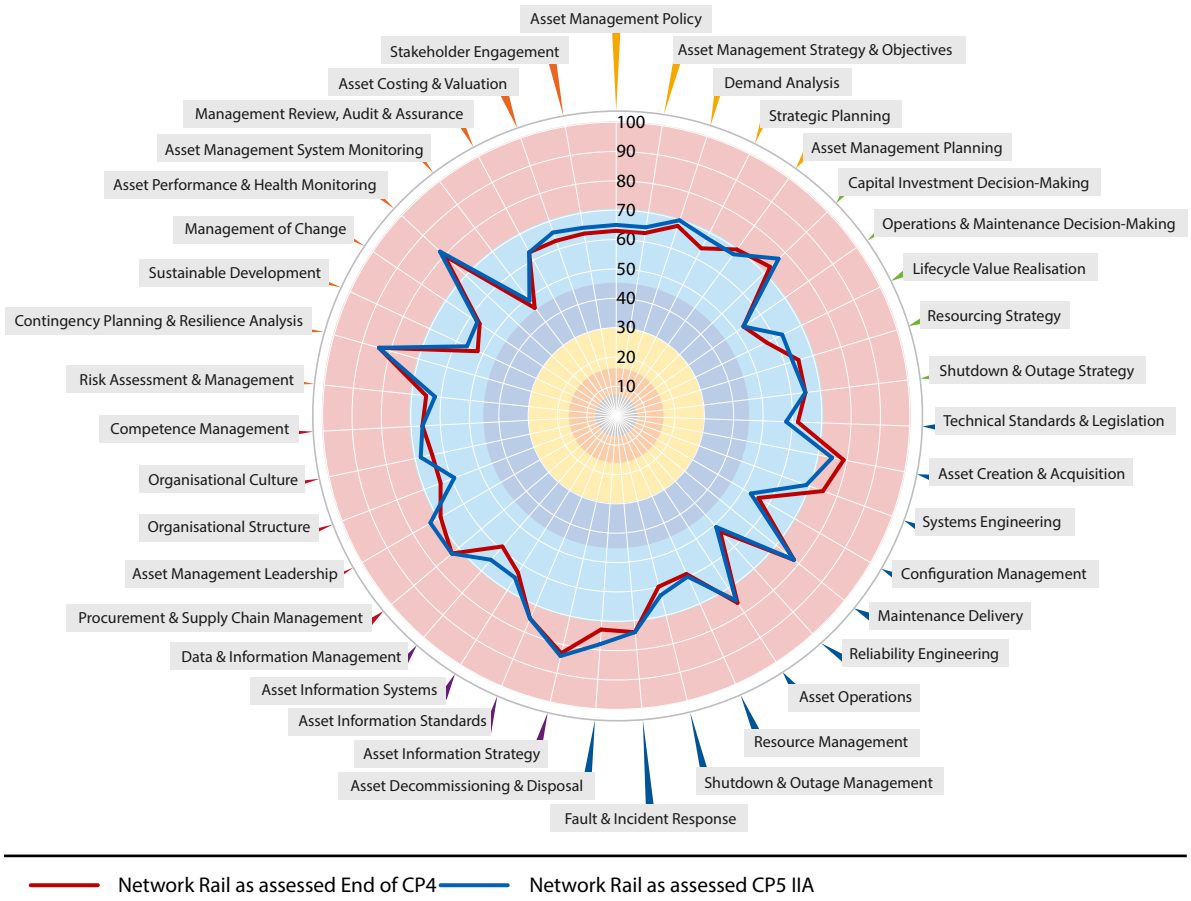
The previous assessment at the End of CP4 provided an extensive review of Network Rail's position at that critical point in time, after a significant amount of development work had been undertaken to underpin the formal CP5 submission. Significant progress in Network Rail's Asset Management capabilities was evidenced at that time, and the report contained a detailed review of the evidence provided and a number of specific indications of what Network Rail should be considering for CP5.

This report has a different focus which concentrates solely on the differences in Network Rail's capabilities since the End of CP4 and any significant new issues identified. The objective is to provide clear guidance for Network Rail to follow in order to ensure the Regulatory targets defined for Asset Management maturity for January 2018 agreed at the End of CP4 are met.

The table below shows Network Rail's scores presented in Appendix A of the End of CP4 AMEM Assessment Report (Version 1.0, July 2014), the current position for scores at Group level for CP5 at the point of this assessment, which broadly coincides with the publication of Network Rail's Initial Industry Advice (IIA), and how they compare to the target scores for January 2018.

	NR as assessed for End of CP4 (39 Subjects)	Regulatory Target for January 2018	NR as assessed for CP5 IIA
1 AM Strategy & Planning	65.4%	72.0%	67.1%
2 AM Decision Making	62.8%	72.0%	64.3%
3 Lifecycle Delivery	67.5%	72.0%	66.8%
4 Asset Information	70.4%	72.0%	72.0%
5 Organisation & People	66.1%	72.0%	67.7%
6 Risk & Review	63.9%	72.0%	64.9%
Overall	66.0%	72.0%	66.7%

The spider chart overleaf shows the comparison between the End of CP4 and the current scores at 39 Subject level.



The overall conclusions to this assessment are:

1) Network Rail has made progress within five of the six Groups, improving scores in all but Lifecycle Delivery. Overall, this has translated into a marginal improvement in the overall score from 66.0% to 66.7%. As described in Section 1.5 organisations typically progress quickly through the lower maturity states, but then find progression through the higher maturity states slower and more of a challenge. In addition organisations may experience dips in maturity when operating at the higher levels of maturity before improving again. Network Rail continues to work on the development of its Asset Management System and approach and it is important at this stage to ensure completion of the initiatives that are in flight to ensure benefits are realised.

2) The Asset Information Group has achieved the 72% target for January 2018. All other Groups are at 64% or more, but Network Rail faces a challenge to achieve the 72% target by January 2018 for the remaining Groups.

3) The Lifecycle Delivery Group is the only Group to have registered a reduction in Group score, albeit marginal. This is driven by worse than expected scores in Technical Standards & Legislation, Asset Creation & Acquisition, Systems Engineering, Configuration Management and Reliability Engineering. There are some common themes running through the last four Subjects listed, primarily the implementation of the P3M3 initiative and devolution to the Routes. The difference for Technical Standards & Legislation is due to an increased focus on compliance

issues that has exposed weaknesses in Network Rail's approach that were not recognised or reported at End of CP4.

4) The impact of devolution on Network Rail's Asset Management System(s) continues to embed. A number of risks were identified at the time of the CP5 IIP / SBP assessments, including:

a. Confusion about the split in responsibilities between the Centre and the Route, in particular relating to the application of Asset Policies.

b. Inadequate Asset Management capabilities and experience in the Routes necessary to undertake effective decision-making in the Routes

c. Divergence in the Routes from Network Rail's overall Asset Information Strategy leading to a fragmented approach to the collection, management and analysis of Asset Information

d. Short-term incentives for delivery of train performance could adversely affect long-term Asset Management decision-making

Although some progress has been made at Routes since the End of CP4, we believe that these risks are still material, and they continue to be recognised and managed at both a Centre and Route level.

5) Asset Management Strategy & Planning: The role of Network Rail's Asset Management System in managing these risks is critical, but at the time of the assessment was being reviewed and updated. This work is part of a long-standing improvement action. The Asset Management Policy, Strategy and Objectives and the associated framework which will more effectively link the Centre to the Routes via improved roles and responsibilities was not yet complete or embedded. In the meantime, planning for CP6 is being undertaken, but the effect of the improvements to the Asset Management System on the quality of the plans cannot yet be judged.

6) Asset Management Decision Making: Network Rail's capabilities in decision making continue to improve, particularly (on the capital side) with respect to whole-life cost models and the application of Asset Policies. However, with respect to defining maintenance requirements, the new maintenance strategy was due for launch in Autumn 2016 and so not yet in place at the time of the assessment, but appears to be a significant improvement on the existing document. Once the revised maintenance strategy is in place to direct decision making and is fully effective we would expect to see a defined strategy for resourcing, informed by the Activity Based Planning work and driven by justified work volumes, linked to Route level plans and achievement of outcomes.

7) Lifecycle Delivery: Network Rail is currently implementing a major improvement programme based on the P3M3 standard which is addressing several known issues within the GRIP and Systems Engineering areas, which is approximately 50% complete. An increased focus on compliance issues has exposed weaknesses in Network Rail's approach that were not recognised or reported at End of CP4 and this has affected the Technical Standards & Legislation score. Additionally the effect on roles and responsibilities within the Centre's Reliability Engineering capabilities

has affected that score. However, all these issues are transitory and have the potential to be resolved by January 2018.

8) Asset Information: Network Rail's Asset Information Strategy continues to be a leading area, however, a refresh and re-alignment of documents and their presentation is needed, and is understood to be underway as part of the EBAK initiative and it is important that this is continued. Asset Information Standards have a good foundation but require greater clarity on the suite of documents and models that define the Network Rail Asset Information Model. This includes further development of quality measures and an extension and completion of the attribute model found in existing Asset Information Specifications. The Asset Information Systems subject group shows limited increase in maturity, but this is due in part to the large volume of IT systems projects still in-flight at the time of assessment.

9) Organisation & People: Overall, devolution means that Network Rail is less Centre-biased than it was at the time of the End of CP4 assessment and the Asset Management approach risks unwarranted divergence across the Routes unless clear leadership ensures consistency is maintained where required. Scores reflect that devolution has involved changes and created diverse views of the role of Asset Management that have held back progress within the Group. However, the leadership ethos and development process compare to best-in-class including leadership behaviours, engineering capabilities and role clarity. Although not geared specifically to the challenge of embedding Asset Management these provide the kind of framework within which asset management thinking and practices could be expected to flourish.

10) Risk & Review: All scores within the Risk & Review Group have improved with the exception of Risk Assessment & Management. Network Rail now has a fully defined and increasingly well embedded Risk Management Framework which aligns to ISO 31000 and Orange Book (UK Government Guidance on Risk Management) requirements, however, this is still being embedded. This Subject also includes Network Rail's climate change planning and adaptation capabilities, which since setting out Route level strategies early in CP5, have not yet been effectively integrated into Network Rail's funded plans. The other review and continual improvement Subjects in this Group will also benefit from the revised Asset Management System described under Conclusion 5.

The overall recommendations to this assessment are:

1) By April 2017 Network Rail to review the findings and specific Group level conclusions and recommendations, and develop a programme to implement the required recommendations as part of the established Asset Management Improvement Plan (AMIP).

2) To adopt to a 'progressive assurance' approach over calendar year 2017 for assessing the Network Rail's Asset Management capabilities through ongoing discussions with relevant personnel and review of evidence.

Glossary

Acronym	Description
ABP	Activity Based Planning
AM	Asset Management
AMEM	Asset Management Excellence Model
AMIP	Asset Management Improvement Plan
BPMF	Business Performance Management Framework
BCAM	Buildings & Civils Asset Management
CP4	Control Period 4
CP5	Control Period 5
CP6	Control Period 6
CRI	Composite Reliability Measure
CRO	Cost Risk Optimisation
CSI	Composite Sustainability Measure
DRAM	Director Route Asset Management
DST	Decision Support Tools
DWWP	Delivering Work Within Possessions
EBAK	Enabling Better Asset Knowledge
FCL	Fault Code Lookup
FOC	Freight Operating Company
GFMAM	Global Forum for Maintenance and Asset Management
GRIP	Governance for Railway Investment Projects
IAP	Industry Access Planning
IIA	Initial Industry Advice
IP	Investment Projects
ISO	International Standards Organisation
LADS	Linear Asset Decision Tool

Acronym	Description
LTPP	Long Term Planning Process
LNW	London North Western (Route)
MDM	Master Data Management
MSP4NR	Managing Successful Projects for Network Rail
NIRG	National Infrastructure Reliability Group
ORBIS	Offering Rail Better Information Services
ORR	Office of Rail Regulation
P3M3	Portfolio, Programme and Project Management Maturity Model
PAS	Publicly Available Specification
PRS	Project Requirements Specification
RACI	Responsibility Accountability Consulted Informed
RAM	Route Asset Manager
RAMS	Reliability Availability Maintainability Safety
RBM	Risk Based Maintenance (includes Reliability Centred Maintenance, Cost-Risk Optimisation and predictive analytics)
RCM	Remote Condition Monitoring
RIRG	Route Infrastructure Reliability Group
RMM	Rail Method of Measurement
SAMP	Strategic Asset Management Plan
SBP	Strategic Business Plan
SHEP	Safety, Health, Environment Panel
SICA	Signalling Infrastructure Condition Assessment
TOC	Train Operating Company
WLC	Whole Life Cost
WRCCA	Weather Resilience and Climate Change Adaptation

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1 Introduction

1.1 Background

AMCL has previously undertaken assessments of Network Rail's Asset Management capability using its Asset Management Excellence Model (AMEM).

During CP3 and CP4 AMCL undertook a number of assessments at key points in time that provided a view of Network Rail's Asset Management capability maturity, and the organisation's progression against the AMCL Roadmap and their own Asset Management Improvement Plan (AMIP). These key points were:

- IIP submission
- SBP submission
- End of CP4/commencement of CP5.

The last assessment at the End of CP4 provided a final position at that time, and also provided the start position for CP5 against an updated set of Asset Management activities known as the Global Forum for maintenance and Asset Management's (GFMAM's) '39 Subjects', which are also presented clustered into 6 Groups. As part of the regulated agreement for CP5 the measure of Network Rail's Asset Management capability maturity according to the GFMAM framework utilising the AMEM became a regulated measure, with a target capability for each of the 6 Groups in the model set at 72% by January 2018. This assessment provides an interim assessment of the changes in Network Rail's current Asset Management capability maturity against the position identified at the End of CP4.

1.2 Network Rail Regulated Measures for CP5

ORR set the following Regulated Measures for Network Rail for CP5:

We have therefore decided to set a score of 72% for each group as a regulated output. If Network Rail achieves a group score of 72%, the probability it exceeded the 70% excellence threshold for that group will be around 90%. We have decided that these outputs will apply at the time of Network Rail"s CP6 SBP submission (January 2018). For the remainder of CP5, we expect Network Rail to demonstrate continuous improvement towards best practice, consistent with achieving its aims for CP6.

1.3 Approach for this Assessment

This report contains the current assessed position against the Regulatory measures agreed at the End of CP4 (summarised in Section 1.2 above). It has been presented in a format and using the version of the AMEM used at the End of CP4 to ensure consistency.

In addition to this overall assessment, three ISO 55001 Gap Analysis assessments were undertaken as sub-sets of the overall assessment in Scotland, LNW and SE Routes. These have been reported separately to the Routes, and where there are Route level findings that impact the main assessment these are reported here too.

1.4 Scope & Objectives of this AMEM assessment

The scope and objectives of the review were defined in the Independent Reporter Mandate 'Network Rail's Asset Management Capability - End of CP4' (Draft C, September 2013) and the main objectives, which is covered in this report, is to complete an 'AMEM Assessment at publication of the CP5 IIP covering all AMEM activities (the 39 Subjects and 6 Groups'. In addition, the mandate included an objective to provide 'ISO 55001 'Gap Analysis' output for three Network Rail Routes (nominally Scotland, LNW and South East)'.

The effective assessment date is August 2016. Interviews and review of evidence were based on AMCL's understanding of Network Rail's position at this date.

The geographical scope of the assessment is National with three Routes fully sampled sufficient to provide an ISO 55001 Gap Analysis. This means meaningful conclusions about LNW, Scotland and South East Routes' Asset Management capability can be reported as part of the National assessment.

The assets within scope are track, signalling, structures, E&P, telecoms and operational property. This is valid at the National level only, with Route samples as follows.

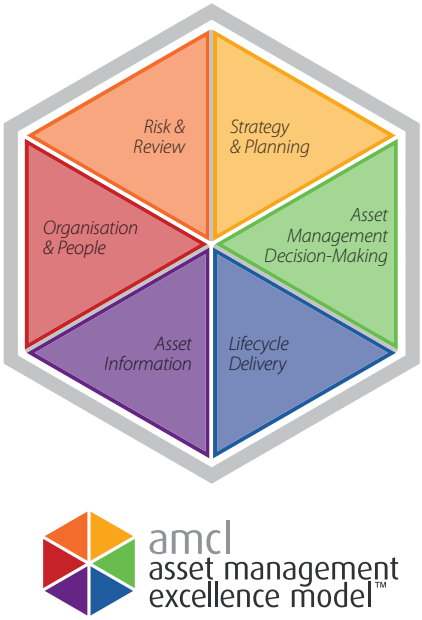
	LNW	Scotland	SE
E&P		✔	
Ops Property			
Signals			✔
Structures	✔		
Telecoms	✔ *(but single interview)*		
Track	✔	✔	✔

Table 1 Assets within scope

1.5 Introduction to the AMEM

This assessment has been undertaken using the internationally recognised AMCL Asset Management Excellence Model™(AMEM), as were the previous reviews undertaken in 2006, 2009, 2011, 2013 and 2014. This assessment has been completed using the version of the AMEM used at the End of CP4 to ensure consistency. The AMEM, which is shown in Figure 1, enables clients to assess their Asset Management capability maturity and benchmark it against world best practice. It is built around the '39 Subjects' which span the range of technical, organisational and human capabilities needed to achieve world-class Asset Management. These subjects are aligned with the second edition of the 'Asset Management Landscape' agreed by the Global Forum for Maintenance & Asset Management (GFMAM). The AMEM tests the existence, completeness, effectiveness and integration of these subjects and is applicable to any asset intensive organisation, including those in highly regulated environments.

Organisations are scored against each of the 39 Subjects using a range of assessment criteria and questions. The scores are presented using the maturity scale shown in Figure 2, which in turn is aligned to the Asset Management maturity scale defined by the IAM. Improvement actions are identified based on the criticality of each subject to the organisation, the current scores for the assessment criteria that make up each subject, and the targets an organisation and its stakeholders wish to set themselves for each subject. AMEM results are used to identify and prioritise improvements based on where an organisation sits relative to world best practice, or defined benchmarks such as ISO 55001.



Strategy & Planning
Asset Management Policy
Asset Management Strategy & Objectives
Demand Analysis
Strategic Planning
Asset Management Planning

Asset Information
Asset Information Strategy
Asset Information Standards
Asset Information Systems
Data & Information Management

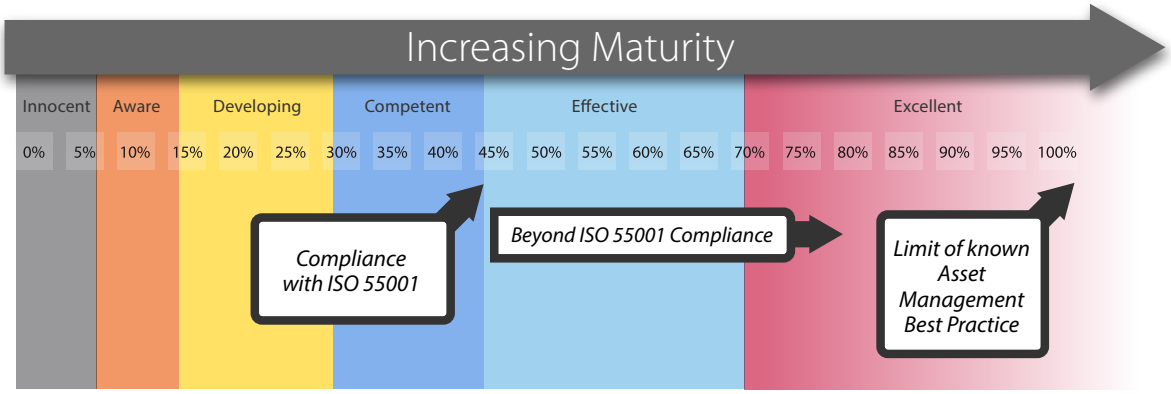
Asset Management Decision-Making
Capital Investment Decision-Making
Operations & Maintenance Decision-Making
Lifecycle Value Realisation
Resourcing Strategy
Shutdown & Outage Strategy

Organisation & People
Procurement & Supply Chain Management
Asset Management Leadership
Organisational Structure
Organisational Culture
Competence Management

Lifecycle Delivery
Technical Standards & Legislation
Asset Creation & Acquisition
Systems Engineering
Configuration Management
Maintenance Delivery
Reliability Engineering
Asset Operations
Resource Management
Shutdown & Outage Management
Fault & Incident Response
Asset Decommissioning & Disposal

Risk & Review
Risk Assessment & Management
Contingency Planning & Resilience Analysis
Sustainable Development
Management of Change
Asset Performance & Health Monitoring
Asset Management System Monitoring
Management Review, Audit & Assurance
Asset Costing & Valuation
Stakeholder Engagement

Figure 1 The AMCL Asset Management Excellence Model™ (AMEM)



The maturity scale has six maturity states as follows:

1	*Innocent*	The organisation is starting to ***learn*** about the importance of Asset Management activities
2	*Aware*	The organisation is aware of the importance of the Asset Management Activities and has started to ***apply*** this knowledge
3	*Developing*	The organisation is developing its Asset Management Activities and ***embedding*** them
4	*Competent*	The organisation's Asset Management Activities are developed, ***embedded*** and are becoming effective
5	*Effective*	The organisation's Asset Management Activities are fully effective and are being ***integrated*** throughout the business
6	*Excellent*	The organisation's Asset Management Activities are fully ***integrated*** and are being continuously improved to deliver ***optimal*** whole life value

Figure 2 The AMEM Asset Management Maturity Scale

Organisations progress through these maturity states at different rates depending on the starting point, the importance of the Subject area to the organisation, and the level of commitment and capability within it. Typically, organisations can progress quickly through the lower maturity states, but then find progression through the higher maturity states slower and more of a challenge. This is because key requirements at the higher levels of maturity include that the approach is fully embedded, integrated and subject to continual improvement, all of which require a long-term commitment and effective collaborative working. Organisations may experience dips in maturity when operating at the higher levels of maturity before improving again.

2 Overview of Assessment Process

2.1 Overview

As described in Section 1.3 the assessment scope has been defined to achieve two objectives:

- to cover the six asset types where activities are identified as being different by asset type; and
- to provide a Route-level ISO 55001 'Gap Analysis' list of the minimum actions for compliance for each of the three Routes (Scotland, LNW and South East).

The assessment design contained four distinct elements – an assessment of Network Rail Centre, and three assessments of the selected Network Rail Routes.

Prior to and during the assessment Network Rail provided relevant documentary evidence related to the IIA submission and other relevant areas, which was controlled and logged by AMCL and Network Rail as it was produced. This documentary evidence was assessed prior to starting the interviews in April 2016 and in parallel with the interview process.

The interviewees and the list of evidenced referenced from the body of this report can be seen in Appendix A and Appendix B.

Following the assessment, all four assessment elements were aggregated at the national level in this single summary-level report, presenting the overall 6 AMEM Groups and 39 Subjects scores and key findings. Three Route-level ISO 55001 Gap Analysis summary reports were also produced and issued to the Scotland, LNW and South East Routes which contained a Gap Analysis against ISO 55001, and a list of the 'minimum actions for compliance' against each of the ISO 55001 clauses.

2.2 Activity Prioritisation

The CP5 IIA AMEM assessment of Network Rail followed the AMCL AMEM Assessment Methodology and all subjects were equally prioritised. Table 2 shows where the activities have been assessed generically and where they have been assessed by asset discipline. Where activities are to be assessed by asset discipline, this has included all six disciplines of track, signalling, structures (including earthworks), E&P, telecoms and operational property. Table 2 also describes the Asset Management activities that will be assessed at the Centre, those activities that will be assessed at the Routes and those that will be assessed at both.

Group	Ref	Subject Name	Assess by:
Strategy & Planning	1	Asset Management Policy	Generic
	2	Asset Management Strategy & Objectives	Generic
	3	Demand Analysis	Generic
	4	Strategic Planning	Asset Type
	5	Asset Management Planning	Asset Type
Asset Management Decision Making	6	Capital Investment Decision-Making	Asset Type
	7	Operations & Maintenance Decision-Making	Asset Type
	8	Lifecycle Value Realisation	Asset Type
	9	Resourcing Strategy	Generic
	10	Shutdown & Outage Strategy	Generic
Lifecycle Delivery	11	Technical Standards & Legislation	Generic
	12	Asset Creation & Acquisition	Asset Type
	13	Systems Engineering	Asset Type
	14	Configuration Management	Asset Type
	15	Maintenance Delivery	Asset Type
	20	Fault & Incident Response	Asset Type
	16	Reliability Engineering	Asset Type
	17	Asset Operations	Generic
	18	Resource Management	Generic
	19	Shutdown & Outage Management	Generic
	21	Asset Decommissioning & Disposal	Generic
Asset Information	22	Asset Information Strategy	Generic
	23	Asset Information Standards	Generic
	24	Asset Information Systems	Asset Type
	25	Data & Information Management	Asset Type
Organisation & People	26	Procurement & Supply Chain Management	Generic
	27	Asset Management Leadership	Generic
	28	Organisational Structure	Generic
	29	Organisational Culture	Generic
	30	Competence Management	Asset Type
Risk & Review	31	Risk Assessment & Management	Asset Type
	32	Contingency Planning & Resilience Analysis	Generic
	34	Management of Change	Generic
	33	Sustainable Development	Generic
	35	Asset Performance & Health Monitoring	Asset Type
	36	Asset Management System Monitoring	Generic
	37	Management Review, Audit & Assurance	Generic
	38	Asset Costing & Valuation	Generic
	39	Stakeholder Engagement	Generic

Table 2 AMEM Subjects Assessed Generically or by Asset Type

2.3 Assessment Process

The assessment process is designed to ensure three principles are maintained based on recognised best practice in performance measurement. Their application ensures that assessments of organisational Asset Management capability using the AMEM are reliable, valid, and informative. These principles have been researched and applied to the design and delivery of performance assessment processes by AMCL.

The three principles are:

1) Reliability: The consistency of assessment scores or results over time or across multiple assessors.

2) Validity: The extent to which an assessment measures what it is supposed to measure and the extent to which decisions made on the basis of assessment scores or results are justifiable.

3) Interpretation: The extent to which assessment scores are grounded in recognisable business practice and lead to consistent suggestions for business process improvement.

The AMEM Assessment Criteria and accompanying Questions are designed to gather evidence on four aspects of Asset Management capability, namely:

- Existence: Is there a process to cover a specific aspect of Asset Management (for example the existence of policy and strategy) and is it current?
- Completeness: Is the scope of the process consistent with best practice?
- Effectiveness: Is the process properly implemented and does it have the desired impact?
- Integration: Are the organisation's various Asset Management capabilities aligned with corporate strategy and orchestrated effectively?

The type of evidence required in each of these four areas varies. In the case of Existence, documentary evidence will often suffice, although there may be questions about currency which require further probing by interview or enquiry. The same is usually the case where Completeness is concerned. To ascertain Effectiveness, it is often necessary to drill down into operational records, performance data, minutes of meetings, audit reports and to interview line managers, front line staff and suppliers. To determine the degree of Integration it is necessary to seek documentary evidence that the relationship between the different Asset Management activities is understood, planned and proactively managed to support business goals. The nature of the Assessment Criteria and Questions, therefore, influences the types of assessment evidence required, which in turn indicates the methods of assessment most likely to generate reliable and valid evidence for scoring.

To maintain the integrity of assessments with respect to these principles, AMCL only uses assessors trained and experienced in the AMEM and its associated methodology. AMCL is endorsed under the Institute of Asset Management's Endorsed Assessor Scheme as competent to undertake evaluations against ISO 55001 using the AMEM assessment process.

2.4 Timescales and Sources of Evidence

Evidence was obtained through a number of methods. The primary method was interviewing Network Rail personnel who had been identified by Network Rail as having the appropriate knowledge of the Activities. The assessment commenced on the 2nd June 2016 and the final interview was completed on the 28th September 2016.

During this time a cross-section of 133 Network Rail staff were interviewed, and over 650 pieces of documentary evidence were requested. All interviewees are listed in Appendix A to this report. Where this evidence is referred to in the text of this report, a reference to the specific evidence has been added, and these are listed in Appendix B. Some of the evidence may not be referenced in the report but is referenced in the detailed scores held within the AMEM database.

3 Overall Findings

3.1 Overview of Group and Subject Scores

Section 1.2 of this report introduces the agreed Group-level targets for the January 2018, which are 72% for each Group, and the rationale for this. Table 3 below shows Network Rail's scores presented in Appendix A of the End of CP4 AMEM Assessment Report (Version 1.0, July 2014), the current position for scores at Group level for CP5 at the point of this assessment, which broadly coincides with the publication of Network Rail's Initial Industry Advice (IIA), and how they compare to the target scores.

	NR as assessed for End of CP4 (39 Subjects)	Regulatory Target for January 2018	NR as assessed for CP5 IIA
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5 Organisation & People	66.1%	72.0%	67.7%
6 Risk & Review	63.9%	72.0%	64.9%
Overall	66.0%	72.0%	66.7%

Table 3 Network Rail Group-level scores for CP5

Figure 3 below shows the comparison between the End of CP4 and the current scores at 39 Subject level.

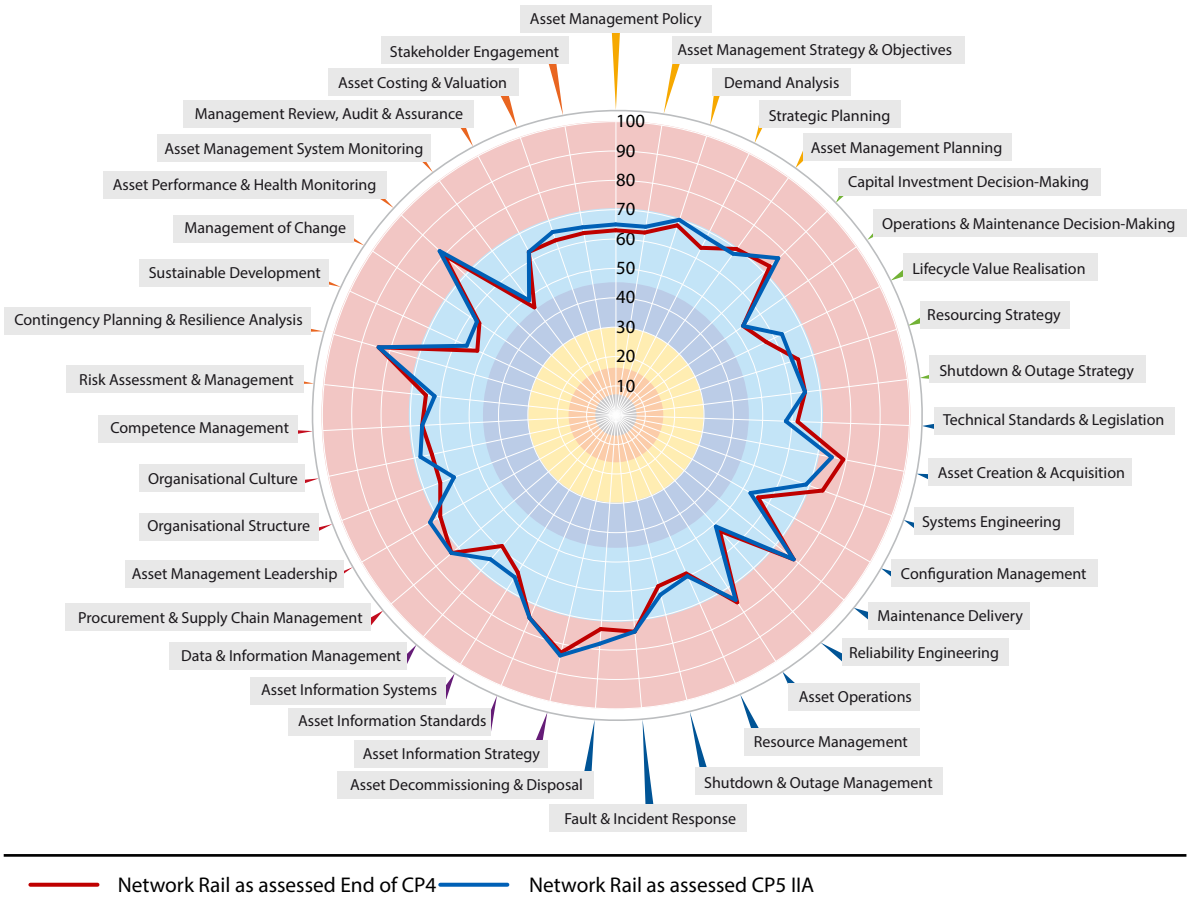

Figure 3 Network Rail End of CP4 versus current as assessed scores for the 39 Subjects

4 Group-level Summaries

4.1 Overview of Strategy & Planning Group

The Asset Management Strategy & Planning Group contains the core Asset Management Activities required to develop, implement and improve Asset Management within an organisation, taking into account business and organisational objectives and the effects of changing demand over time on the asset portfolio. The effective output of this Group is a fully justified, long-term Asset Management Plan which clearly explains what the organisation plans to do with its assets with respect to creation, maintenance and operation, and disposal. The Group is split into five Subjects which are:

- **Asset Management Policy**
  the principles and requirements derived from and consistent with the organisational strategic plan that the organisation will use to manage its physical assets.
- **Asset Management Strategy & Objectives**
  the strategic approach for the management of the physical assets of the business that will be used to achieve the organisational strategic plan, including the definition of specific Asset Management objectives.
- **Demand Analysis**
  the processes an organisation uses to both assess and influence the demand for, and level of service from, an organisation's assets.
- **Strategic Planning**
  the process an organisation uses to undertake strategic Asset Management planning.
- **Asset Management Planning**
  the processes and plans that specify the activities and resources, responsibilities, timescales and risks for the achievement of the Asset Management objectives.

4.1.1 Score summary

Subject	End of CP4	IIA	Existing Initiative?	Reference	Recommendations
Asset Management Policy	63%	65%	Y	01	Issue and embed the new Asset Management Policy.
			Y	02	Ensure greater clarity of the scope, boundaries and roles within the Asset Management System with respect to Network Rail Centre, the Routes and the relationship with the Integrated Management System.
Asset Management Strategy & Objectives	63%	65%	Y	03	Issue and embed the new Asset Management Strategy.
			N	04	Refine Asset Management objectives to ensure they are SMART, aligned with the organisational Balanced Scorecard and can be more easily disaggregated and aligned with at Route level.
Demand Analysis	68%	70%	N/A	N/A	No recommendations identified.
Strategic Planning	64%	68%	N	05	Identify root cause for initial top down / bottom up misalignment of work volumes and costs and improve process to rectify.
Asset Management Planning	70%	68%	N	06	Review the Asset Management planning process and the use of Asset Management Plans at the DU level to assure that realistic plans are developed that can be appropriately resourced and delivered to achieve outcomes and objectives.

4.1.2 Summary of Findings

The overall score for the Asset Management Strategy & Planning Group has increased by 1.7% since the last assessment to a current average of 67.1%. Of the five Subjects within the Group four have increased and one, Asset Management Planning, has decreased.

The first Subject, Asset Management Policy, which includes the definition of the organisation's Asset Management System, has increased to 65%. Network Rail's well established and detailed Asset Management Policy (NR/CP5/IIA/SP01) remains as published in 2014 but there was clear evidence of an ongoing review and update process at the time of the assessment supporting its continual improvement. The Asset Management Policy was well recognised and understood across the organisation. The new Safety, Technical and Engineering (STE) central function (NR/CP5/IIA/SP02) has established clear ownership of the overall Asset Management System for Network Rail, including the Asset Management Policy and Asset Management Strategy and Objectives. The Asset Management System is well defined, via the Asset Management Policy, Devolution Handbook and Asset Management System documentation (NR/CP5/IIA/SP03) and there was evidence of a clear understanding of the changing business context since the last assessment (NR/CP5/IIA/SP04). This is being considered in the current review and update of the Asset Management Policy and wider Asset Management System. In the longer-term Network Rail is seeking to develop an Integrated Management System (IMS) (NR/CP5/IIA/SP12) to consolidate the twenty-plus management systems currently used in the organisation, with Asset Management as a core focus. This is an ambitious but potentially highly beneficial and leading practice initiative if successful. One key area of development for the Asset Management System, whether that be via an IMS or direct update, is to ensure greater clarity of the scope, boundaries and roles within the Asset Management System with respect to Network Rail centre and the now more devolved Routes.

The Asset Management Strategy & Objectives Subject has also increased in score to 65% since the last assessment. The formally published document (NR/CP5/IIA/SP05) remains as per 2014 but again was subject to clear review and update processes at the time of this assessment to ensure it was in place in time to inform the next Control Period. Network Rail's Asset Management Strategy includes an Asset Management Framework which sets out the management of the asset lifecycle and criticality, which in turn is embedded through the Asset Policies and the recently developed Strategic Route Asset Management Plan (SRAMP, now known as Route Strategic Plan or RSP) templates (NR/CP5/IIA/SP06). There is also continued progress in the development of the organisation's Asset Management capability through the Asset Management Strategic Theme (NR/CP5/IIA/SP07). Remaining opportunities in the review and update of the Asset Management Strategy & Objectives Subject relate to the refinement of Asset Management objectives to ensure they are SMART (specific, measurable, assignable, realistic and timebound), are aligned with the organisational Balanced Scorecard and can be more easily disaggregated and aligned with at Route level.

The Demand Analysis Subject score has increased by 2.4% to 70%, on the boundary of Excellent, since the last assessment. The period of time since the last assessment has seen continued refinement and use of the well-established Long-Term Planning Process (LTPP) (NR/CP5/IIA/SP08) and the associated four key Market Studies (NR/CP5/IIA/SP09) and specific Route Studies (NR/CP5/IIA/SP10), which continue to represent good practice. Further Route Studies have been developed in lieu of the previous Route Utilisation Strategies (RUSs) and form a key link to Strategic Planning across the organisation.

The Strategic Planning Subject score has increased significantly from 64% to 68%. A number of lessons have been learned from the Control Period 5 Strategic Business Plan development and submission process. A clear Strategic Planning Framework has been established to develop plans from the Route Studies and wider Demand Analysis process and is now led by the Business Review Team. This includes clear milestones and centrally derived guidance on the requirements for each milestone and the alignment of the 'top-down' and 'bottom-up' planning processes. This is supported by the new SRAMP document template (NR/CP5/IIA/SP06) and guidance on its iterative refinement through the process, including the development of clear scenario options, including budget constrained and digital railway scenarios. Criticality, whole-life costing and the management of strategic asset risks continue to be embedded in the process via the continually refining Asset Policies (NR/CP5/IIA/SP11) and their embedding in more mature whole-life costing models. It is understood that there were significant and material differences between the early Route based 'bottom-up' work and cost volumes for Control Period 6 and the 'top-down' modelled work and cost volumes for the same period, which also occurred during CP5. Although the specifics of this are not part of this assessment it will provide a 'stress test' of the new Strategic Planning Framework and further lessons learned for continual improvement.

The Asset Management Planning Subject is the only one in the Group to have reduced since the previous assessment. The Subject score has dropped from 70% to 68%. Both the Route and IP plans for CP5 have proved a challenge to deliver, with work volumes significantly below those planned at the outset.

The original Control Period 5 Route Plans have been disaggregated to Delivery Unit (DU) level (NR/CP5/IIA/SP13) which contain the detailed work plans, linked back to the overall Route Plan. However, at the beginning of CP5 it soon became apparent that the work volumes, costs and desired outcomes were not being delivered. Since then, Network Rail has put in place a process to regularly reforecast work volumes and costs in the light of previous performance (NR/CP5/IIA/SP14). These reforecasts are significantly lower than the original Route Plan, and it is reported that delivery is now improved, however volume analysis shows a mixed performance, with some significant variances both below and above planned volumes persisting (NR/CP5/IIA/SP15 and NR/CP5/IIA/SP16). This issue highlights the challenge Network Rail has in ensuring its longer-term plans (i.e. ones that are produced to justify the regulatory submission) are sufficiently robust and deliverable, and how these are translated into reliable medium- and short-term plans (see also Asset Management Decision-Making).

It was reported by some interviewees that the DU AMP is not actually used as the main planning tool or document by the DU and analysis of document control systems indicated that the DU AMPs were not regularly accessed by stakeholders that would be expected to use it to drive work on the ground. Interviewees also reported that the DU AMP is not developed into a formal resourcing plan to deliver requirements and that existing resources are actually used to define the amount of work that can be delivered. The process and structure of Asset Management planning and the use of Asset Management Plans at the DU level requires review to assure that realistic plans that can be developed and appropriately resourced and delivered to achieve outcomes and objectives. These risks are recognised within the Routes and are being managed through regular ERR risk reviews (NR/CP5/IIA/SP17), and continue to be closely monitored by the ORR (NR/CP5/IIA/SP18).

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4.2 Overview of Asset Management Decision Making Group

The Asset Management Decision-Making Group contains the Asset Management Activities required to enable the development of whole-life cost justified and optimised Asset Management Plans. The outputs from this Group are a set of asset policies which present optimised Asset Management lifecycle decisions for all the organisation's assets, and guidance on how these should be applied or modified. The Group is split into five Subjects which are:

- **Capital Investment Decision-Making**
  the activities undertaken by an organisation to determine the capital expenditure requirements necessary to deliver the strategic plan.
- **Operations & Maintenance Decision-Making**
  the processes and activities undertaken to define appropriate maintenance requirements.
- **Lifecycle Value Realisation**
  the activities undertaken by an organisation to trade-off the costs and benefits of different renewal and maintenance interventions over the life of the assets, systems and asset portfolio with respect to value.
- **Resourcing Strategy**
  the activities undertaken by an organisation to optimise the use of people, plant, tools and materials to deliver the required Asset Management activities.
- **Shutdowns & Outage Strategy**
  the activities undertaken by an organisation to develop an optimised strategy for shutdowns or outages.

4.2.1 Score summary

Subject	End of CP4	IIA	Existing Initiative?	Reference	Recommendations
Capital Investment Decision-Making	73%	77%	N	07	Implement further training and accelerate embedding of whole-life cost tools within the Routes themselves
Operations & Maintenance Decision-Making	53%	53%	Y	08	Issue and embed the new Maintenance Strategy
			N	09	Establish a formal cost-risk optimisation (CRO) process to enhance the reliability centred maintenance regimes to risk based regimes.
Lifecycle Value Realisation	57%	63%	N	10	Align WLC models with emerging maintenance regimes developed using the new Maintenance Strategy
			N	11	Consider implementation of portfolio optimisation across the network
Resourcing Strategy	65%	63%	N	12	Establish a strategic approach and strategy/ plan hierarchy for the identification, sourcing and management of resources necessary to deliver plans and achieve objectives
			N	13	Complete this at both national and Route levels
Shutdowns & Outage Strategy	65%	65%	N	14	Establish a common good practice approach to Route level possession planning and optimisation defined in a national Possession Strategy

4.1.2 Summary of Findings

The overall score for the Asset Management Decision Making Group has increased by 1.5% since the last assessment to a current Group average of 64.3%. Of the six Subjects within the Group five have increased and one, Resourcing Strategy, has decreased.

The first Subject in the Group, Capital Investment Decision-Making, has increased to 77% since the last assessment. A clear framework and process is in place, from unconstrained 'bottom-up' requirements based on condition, through the application of continually improving Asset Policies (NR/CP5/IIA/DM01) and whole-life cost models to incorporation in the well-established GRIP (NR/CP5/IIA/DM02) process. This is supported by clear validation and review governance and business case processes. A further enhancement in whole-life cost tool support to decision-making was noted via the development of Asset Lifecycle Templates (NR/CP5/IIA/DM03) for use by the Routes with the Cobalt whole-life cost tool. Opportunities for improvement include greater embedding of whole-life cost tools and their use by trained operatives within the Routes themselves, rather than relying on central teams to undertake the majority of analysis for them.

The second subject in the Group, Operations & Maintenance Decision Making, scored fractionally higher than the previous assessment but remained at 53% overall. The existing Network Rail Maintenance Strategy was found to be not well embedded throughout the organisation. A new and seemingly good practice Maintenance Strategy (NR/CP5/IIA/DM04), including a more developed approach to criticality and maintenance requirements analysis, was undergoing final drafting at the time of the assessment but had not yet been approved or rolled out. The Risk Based Maintenance (RBM) programme (NR/CP5/IIA/DM05) had continued to undertake maintenance requirements analysis and develop new reliability centered maintenance (RCM) regimes for certain assets but actual application across the overall asset base was still reported as relatively limited. There is still no formal cost-risk optimisation (CRO) approach applied to the reliability centred maintenance regimes either. Continued refinement of the Asset Policies, supported in some limited areas by the development of the Business Critical Rules Means of Control process, had a positive impact on Operations & Maintenance Decision Making.

The Lifecycle Value Realisation Subject has increased significantly from 57% at the previous assessment to 63% in this latest assessment. This was driven by incremental improvements in the Asset Policies (NR/CP5/IIA/DM01) and continued enhancement of the whole-life cost models (NR/CP5/IIA/DM06) used at the centre on an organisational basis and those available to the Routes. This includes the evidenced development of Asset Lifecycle Templates (NR/CP5/IIA/DM03) for use by the Route, although these were due to be rolled out at the time of the assessment. The links between the Asset Policies and the whole-life cost models were also demonstrably improved and the outputs considered more accurate and tangible as a result of continued improvements in condition and deterioration data. The management of aging assets remains locally based with little material change since the

previous assessment. This minimal delta since the previous assessment also applies to the rationalisation of assets, which remains largely undertaken on a scheme-by-scheme basis rather than in a systematic manner.

The Resourcing Strategy Subject has reduced to a capability score of 63%, down from 65% at the last assessment. During the assessment, the Network Rail appointed interviewees were unable to identify any corporate Resourcing Strategy, raising potential risks around missing overarching economy of scale efficiencies, particularly around rail specialist resources – plant and people. It was noted that potential issues already existed with respect to specific Signalling skills (NR/CP5/IIA/DM07) which may be compounded by Digital Railway plans which will require similar skills to implement. Centrally managed plant resources, such as Kirchoff cranes, were identified as having a well-established 't-minus' process (NR/CP5/IIA/DM08) for their reservation and use on projects as part of the wider 'Delivering Work Within Possessions' process but human resource implications were not managed on a strategic basis and considered to be a Route role. However, Routes were found not to have the equivalent of a Resourcing Strategy either, beyond the established short-term framework contracts. Some Route interviewees identified the Phase 2B/C process as the last 'resourcing strategy' approach and human resource requirements were managed at the Delivery Unit level, i.e. tactically only with little strategic guidance. It was noted that several new tools and approaches for strategic resource management have been developed by the centre (NR/CP5/IIA/DM09) but these were not yet fully embedded in the Routes, and overall, the Resourcing Strategy in the Control Period 5 Strategic Business Plan (SBP) had not proven to be fully effective in managing deliverability risks.

The Shutdown & Outage Strategy Subject score increased fractionally on an absolute basis but remains at 65% when rounded up. The cross-industry approach to access continues to develop through the Integrated Access Planning (IAP) process (NR/CP5/IIA/DM10), wider industry involvement and thinking (such as via the Rail Delivery Group) and significant train and freight operator engagement. However, no overall strategy was identified by Network Rail interviewees and access was largely managed on a Route basis with national deconfliction processes. At the time of the assessment there were plans to devolve the central Capability Planning team to further support local decision making at the Route level. Route Access Strategies continue to be refined but the approach varies significantly by Route and there is little clarity of the best approach. Recently developed tools, such as the IAP Phase 1 tool (NR/CP5/IIA/DM11), which in theory enable a more systematic assessment of access optimisation had not been well embedded in the Routes outside of the initial trial in South-East Route.

4.3
Overview of Lifecycle Delivery Group

The Lifecycle Delivery Group contains all the Asset Management Activities required to implement the Asset Management Plans created in the Asset Management Strategy & Planning Group (see Section 4.1). The Group is split into eleven Subjects which are:

- **Technical Standards & Legislation**
  the processes used by the organisation to ensure its Asset Management activities are compliant with the relevant technical standards and legislation.
- **Asset Creation & Acquisition**
  the organisation's processes for the acquisition, installation and commissioning of assets.
- **Systems Engineering**
  a robust approach to the design, creation and operation of systems.
- **Configuration Management**
  a management process for establishing and maintaining consistency of a product's physical and functional attributes with its design and operational information throughout its life.
- **Maintenance Delivery**
  the management of maintenance activities including both preventive and corrective maintenance management methodologies.
- **Reliability Engineering**
  the processes for ensuring that an item shall operate to a defined standard for a defined period of time in a defined environment.
- **Asset Operations**
  the processes used by an organisation to operate its assets to achieve the business goals.
- **Resource Management**
  the processes used by an organisation to manage its resources in support of its Asset Management plans.
- **Shutdown & Outage Management**
  the processes used by an organisation to optimally deliver the shutdown and outage strategy.
- **Fault & Incident Response**
  the processes used by an organisation to predict and respond to failures and incidents.
- **Asset Decommissioning & Disposal**
  the processes used by an organisation to decommission and dispose of their assets.

4.3.1 Score summary

Subject	End of CP4	IIA	Existing Initiative?	Reference	Recommendations
Technical Standards & Legislation	62%	58%	N	15	Rectify scope of current compliance register to include external standards, regulations and legislation that affect Network Rail's Asset Management System
			N	16	Clarify accountabilities and responsibilities for maintaining the accuracy of the compliance register
			Y	17	Complete risk-based decision-criteria and overall process to demonstrate to stakeholders that required levels of compliance will be achieved
Asset Creation & Acquisition	79%	75%	Y	18	Complete introduction of the 20 P3M3 improvement projects, including fully embedding any changes within the IP community
Systems Engineering	75%	69%	Y	19	Complete introduction of the 20 P3M3 improvement projects, including fully embedding any changes within the IP community
			N	20	Improve knowledge of the capabilities of the Systems Analysis Group within Network Rail, and consider making an increased volume of good practice guidance in this are mandatory
Configuration Management	56%	53%	N	21	Develop a framework to identify Network Rail's configuration management requirements and under what circumstances these are applied, related to the criticality of the assets in question
Maintenance Delivery	78%	78%	N/A	N/A	No recommendations identified
Reliability Engineering	53%	51%	N	22	Clarify roles and responsibilities for reliability planning and growth and coordinate these across the Centre organisation
			N	23	Focus the NIRG and RIRG structure more on to managing and growing underlying reliability and ensure they coordinate effectively between disciplines and across the country
			N	24	Develop integrated reliability growth plans across disciplines and across the country to ensure the most effective and efficient approach to improving reliability is implemented
Asset Operations	76%	75%	N/A	N/A	No recommendations identified
Resource Management	59%	60%	N	25	Align resource management activities with updated national and Route Resourcing Strategies
Shutdown & Outage Management	60%	63%	N	26	Align possession management activities with the updated Possession Strategy
Fault & Incident Response	74%	74%	N/A	N/A	No recommendations identified
Asset Decommissioning & Disposal	73%	78%	N/A	N/A	No recommendations identified

4.3.2 Summary of Findings

Five of the scores for the Lifecycle Delivery Group have reduced since the End of CP4 (although two only marginally), two have remained the same and three have gone up. Overall the Group's score has reduced by 0.8%, which is the only Group level score of the six Groups to have reduced since the End of CP4.

The first score to have reduced is Technical Standards & Legislation. An increased focus on compliance issues by the ORR has exposed weaknesses in Network Rail's approach that were not recognised or reported at End of CP4 – for example with Electricity at Work compliance (NR/CP5/IIA/LD01). In general, Network Rail's Health & Safety legal compliance register has grown to include a broader range of information than just Health & Safety and is by default now being used as a general central legal compliance register. In addition, it was reported that the legal department is no longer effectively supporting keeping this register up-to-date. It was also reported that there is a backlog of external standards and legislation which have not yet been effectively integrated into Network Rail's standards. However, Network Rail did include compliance plans and expenditure (including the Electricity at Work compliance requirements currently under scrutiny by the ORR) in its submission for CP5 but it is understood this was not agreed at the time. Overall the conclusion is that, apart from the improvement Network Rail needs to make to its internal processes for identifying, registering, assessing and incorporating external standards, regulations and legislation, a more collaborative approach between the ORR and Network Rail should be developed to support these processes.

The second score to have reduced is Asset Creation & Acquisition. Traditionally this has been an area of relative strength for Network Rail and, despite the reduction in score, remains so. The main factor affecting the score is related to the work Network Rail has been undertaking to align with P3M3 requirements. Twenty P3M3 improvement projects have been identified and are being rolled out (NR/CP5/IIA/LD02). At the time of the assessment, the work was approximately 50% through the projected scope. There was good evidence against this Subject and the Systems Engineering Subject (see next paragraph) that these improvement projects were progressing, however it was also clear that they are far from embedded. This affects the Subject scores because the expectation of defined process has been set but not fully realised. For example, the P3M3 'GRIP for Programmes' approach has now been defined and briefed (NR/CP5/IIA/LD03) but is not retrospective, and Network Rail was uncertain how many programmes have adopted the approach to date. One IP Head of Engineering reported being aware of the P3M3 programme management initiative but has not seen any formal programme management outputs. They continue to use their own approach developed in conjunction with the local Programme Manager (NR/CP5/IIA/LD04).

The third score to have reduced is Systems Engineering. As with Asset Creation & Acquisition, this is partially related to the implementation of the P3M3 improvement programme, the exposure this has had on how well embedded existing processes are, and how well embedded any new practices are. For example, it was reported that the Level of Control (LOC) procedure (a requirement

of GRIP) has not been consistently applied and has not resulted in different, appropriate, levels of project governance being applied according to project complexity, as intended and reported in previous assessments. One of the P3M3 improvement projects has re-written the LOC procedure and has re-classified all LOC1 projects accordingly (NR/CP5/IIA/LD05). Another example of P3M3 improvement is the implementation of the Integrated Engineering Lifecycle (iELC) project, which is not yet fully rolled out (NR/CP5/IIA/LD06). The iELC is designed to apply a more consistent and holistic requirements management process across multi-disciplinary projects. Traditionally Network Rail has applied requirements management reasonably effectively within specific disciplines (e.g. signalling) but has not spread or coordinated these approaches across the disciplines.

Other factors affecting the Systems Engineering score include reports that Route Requirements Documents (RRDs) are rarely effectively filled in – for example by specifying standards or specific solutions to meet rather than specifying project requirements – and the influence of the Systems Analysis Group, which has access to and specifies a range of good practice in Systems Engineering which is generally not mandatory or widely understood and utilised within Network Rail. For example, the 'General Guide to System Reliability Requirements and Techniques' is not a mandatory document, however the new 'Product Design for Reliability' standard is mandatory and references it (NR/CP5/IIA/LD08).

The fourth score to have reduced is Configuration Management. Although Network Rail's Configuration Management approach has not significantly changed since the End of CP4 it was apparent during this assessment that Network Rail would benefit from a more clearly defined framework for configuration management, allowing a clear understanding of when such an approach would be appropriate. For example, it was reported that the specification for the Management of Safety Related Infrastructure Records (NR/L2/INF/02018 - NR/CP5/IIA/LD07) and the interface between the National Records Group (NRG) and the Signalling National Projects (SNP) group works well; however it was also reported that Project Requirements Specification (PRS) documentation always needs validating if sourced from Ellipse, suggesting a lack of confidence in asset configuration records.

Reliability Engineering is the fifth score to have reduced since the End of CP4, although only marginally. The 'Product Design for Reliability' Level 2 standard is new and mandatory, with a compliance date of April 2017, but it is not yet effective (NR/L2/RSE/0005 – NR/CP5/IIA/LD08). In general though, Network Rail has built up an effective level of capability in this area over the years, focusing on the development of the National Infrastructure Reliability Group (NIRG) and the Route Infrastructure Reliability Groups (RIRGs). A few factors have affected the scores at this moment in time. Firstly, the central reliability group has been disaggregated across the new engineering organisation, with the engineering heads now responsible for their individual engineering discipline's reliability plans. At the time of the assessment the individual roles had not all been filled, and there was a lack of clarity

about roles, responsibilities and objectives for reliability improvement within all engineering disciplines. The NIRG / RIRG format is still operating, but the focus has shifted from managing underlying reliability through to Service Affecting Failures (SAFs). Reliability plans do exist, but there appears to be much less coordination across disciplines or across Routes than has been evidenced in the past.

The Maintenance Delivery, Fault & Incident Response and Resource Management Subjects have not significantly changed since the End of CP4. Both the delivery of maintenance activity and the management of the resources continue to be undertaken with broadly the same approaches. Issues that were identified at the End of CP4 remain of concern, for example issues with the implementation of the Fault Code Lookup (FCL) iPhone App are still not fully resolved. It was also reported that resource planning is generally still a 'top-down' activity which is not driven by 'bottom-up' workload requirements perhaps as strongly as it could be.

All remaining Subjects in the Lifecycle Delivery Group either score at or better than the position at the End of CP4.

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4.4
Overview of Asset Information Group

The Asset Information contains all the Asset Management Activities required to specify, collect, maintain and dispose of asset information in a way that fully supports all aspects of an organisation's Asset Management System. The Group is split into four Subjects which are:

- **Asset Information Strategy** - the approach to the definition, collection, management, reporting and overall governance of asset information necessary to support the implementation of the organisation's Asset Management strategy.
- **Asset Information Standards** - the specification of a consistent structure and format for collecting and storing asset knowledge.
- **Asset Information Systems** - the asset information systems the organisation has in place to support the Asset Management activities and decision-making processes in accordance with the asset information strategy.
- **Data & Information Management** - the data and knowledge held within the organisation's asset information system.

4.4.1 Score summary

Subject	End of CP4	IIA	Existing Initiative?	Reference	Recommendations
Asset Information Strategy	83%	84%	N	27	Update the Asset Information Strategy to reflect current status of information to meet business needs across Network Rail, IT systems enhancement programmes, and Data Management. Include a consolidated SMART roadmap of improvement initiatives, to achieve the benefits case. Re-integrate ORBIS project progress in to the Asset Information Strategy, and detail of the implementation of the new Asset Data Governance (ADG) Framework.
			Y	28	Align revised Asset Information Strategy with wider Network Rail technology strategy, and clarify relationship to 'Better Asset Knowledge' working group / initiative.
Asset Information Standards	75%	75%	N	29	Implement greater clarity and communication of the suite of documents, specifications, dictionaries and models which comprise the Network Rail definition of their information model, and how these support the ADG framework.
			Y	30	Continue to focus on the Asset Information Specifications, ensuring they cover all asset classes beyond track, and define in detail attributes for all 'information layers', e.g. Financial. Provision of a full set of data quality parameters is also required.
Asset Information Systems	63%	65%	Y	31	Focus on embedding the new IT systems just delivered through the ORBIS programme (such as Ellipse upgrade) and necessary change management, to ensure benefits are realised.
			Y	32	Continue to implement 'Improved Planning Tools' and 'Visualisation' themes within the 'Better Asset Knowledge' initiative to break down silos in work banks, and to provide better integration between systems. Ensure easier access to information to tackle issues with multiple system entry points.
Data & Information Management	59%	65%	Y	33	Clearly communicate and roll-out the new ADG information management framework to the Routes, with necessary responsibilities and resources confirmed. Establish strong linkage from the ADG framework to relevant Asset Information Standards, specifically the Asset Information Specifications with necessary quality parameters.

4.4.2 Summary of Findings

In comparison with the end of CP4 the scores for the Asset Information Group subjects have either remained the same, shown marginal improvement, or advanced significantly in the case of Data & Information Management. Overall the Group's score advanced by 1.6%, increasing from 70.4% to 72.0%, this achieves the agreed January 2018 Group target.

In summary, the Asset Information Group scoring remains high when benchmarked against peers, with Asset Information Strategy continuing to be a leading area, however, a refresh and re-alignment of documents and their presentation is needed in this subject area. Asset Information Standards have a good foundation but require greater clarity on the suite of documents and models that define the Network Rail Asset Information Model. This includes further development of quality measures and an extension and completion of the attribute model found in existing Asset Information Specifications. The Asset Information Systems subject group shows limited increase in maturity, but this is due in part to the large volume of IT systems projects still in-flight at the time of assessment.

The Asset Information Strategy (NR/CP5/IIA/AI01) has been updated several times since its inception in 2011, including condensing content and breaking out the ORBIS programme's roadmap. Specific strengths remain within the latest version (2.0/2015) in defining the Network Rail vision for Asset Information and providing a high-level presentation of the information. Alignment to Asset Management System requirements and the needs of key stakeholders is well presented.

Routes are aware of the Strategy, although it is not referenced or used regularly. It was noted that several areas require update to reflect capabilities now delivered by ORBIS, and importantly to present the new Asset Data Governance (ADG) framework. Sections related to data management need particular attention. Evidence showed that Asset Information vision setting and roadmap development were being driven by other initiatives and recorded in separate presentations, such as 'Better Asset Knowledge' (NR/CP5/IIA/AI02 and NR/CP5/IIA/AI03). It is recommended that the Asset Information Strategy is updated to present the latest thinking and activities. Interviewees also suggested greater alignment with wider Network Rail technology and IT strategies.

The Asset Information Standards maturity scoring remained static at 75%, reflecting limited evidence in extending the scope and depth of existing Asset Information Specifications and Data Dictionaries. Coverage can be improved in terms of Asset Classes and the provision of RACI, system of record, and data quality parameters by attribute. Track remains the most advanced in terms of the provision of an Asset Information Specification (NR/CP5/IIA/004). Detailed cost/benefit analysis for collecting and managing data attributes or information 'layers' is limited. It is recommended to extend the breadth of data attributes, and their detailed definition, into areas such as Risk and Financial information layers.

Clearer 'line of sight' from Asset Information Standards to the Asset Information Strategy could be achieved by providing greater clarity on the suite of documents, specifications, dictionaries and models (NR/CP5/IIA/005)

which comprise the Network Rail definition of their information model, and how these artefacts are intended to support data management processes. Clarity on progress of NR's MDM programme is required.

The ORBIS programme was delivering a significant number of improvements to the Network Rail Asset Information Systems portfolio at the time of assessment, with go-lives due at the end of 2016 through to early 2017. This included a significant Ellipse 8 upgrade, CSAMS, and GEOGIS replacement by GEOINM/RINM/INM. The effective embedding of these new capabilities will be key to achieving the Asset Information Strategy vision and increased maturity levels.

Positive feedback was received on mobile work management and forms solutions (i.e. My Work Manager and FDM) and the LADS decision support tool, albeit interviewees stated LADS provided visualisation rather than modelling capabilities. Improvements were suggested in document management systems, risk management systems, and the integration of fault management and work management systems. Multiple entry points to the data model via multiple systems was referenced as an issue, with users needing to understand how to navigate between systems rather than an intuitive 'front end'.

Data and Information Management has shown a significant increase in maturity, mainly due to feedback from the routes that Asset Information quality is improving, especially with regard the technical and condition data attributes associated with asset register records. Some variance in quality of information across asset classes was expressed, with Track data records deemed of good quality. Factors related to this improvement include the ORR A2 data quality metrics (NR/CP5/IIA/AI06 and NR/CP5/IIA/AI07) and the visibility this provides to problem records, and the structured processes to resolve, with A2 data quality being the subject of a separate regulated output for CP5. Another contributing factor to improving data quality was the My Work Manager and FDM mobile solutions provisioned by ORBIS, and their inherent data validation rules. These tools have allowed data record improvement by staff directly in the field. Centralised Asset Data Improvement Programmes have also been used to drive specific data improvement by Asset Class. Concerns were raised on the availability and quality of unstructured information such as schematics.

The newly developed Asset Data Governance (ADG) framework provides a data quality management system based on ISO8000 (NR/CP5/IIA/AI08), which had been trialled over a 4 week period on the Western Route. This Centre initiative reflects leading practice; however, it is an ambitious approach and will require necessary support and resource from the Routes. Interviewees from the routes were unaware of the programme, and require necessary education and enablement. Routes continue to use legacy data quality approaches.

4.5
Overview of Organisation & People Group

The Organisation and People Enablers Group is focused on assessing the capability of an organisation, its people and its supply chain to effectively implement all aspects of Asset Management. The Group is split into five Subjects which are:

- Procurement & Supply Chain Management - the management and development of supply organisations.
- Asset Management Leadership - the leadership of the organisation in promoting a whole-life Asset Management approach to the stewardship of the organisation's assets.
- Organisational Structure - the structure of the organisation in terms of its ability to deliver effective Asset Management.
- Organisational Culture - the culture of the organisation in terms of its ability to deliver effective Asset Management.
- Competence Management - the processes used by the organisation to systematically develop and maintain an adequate supply of competent and motivated people to fulfil its Asset Management objectives.

4.5.1 Score summary

Subject	End of CP4	IIA	Existing Initiative?	Reference	Recommendations
Procurement & Supply Chain Management	73%	73%	Y	34	Improve effectiveness of processes to enable dialogue on supplier performance and contract management between Routes and IP.
			Y	35	Improve effectiveness of processes to enable feedback from Routes to the owners of Asset Policies and Asset Management Strategy in the Centre.
Asset Management Leadership	69%	73%	Y	36	Alignment of business strategy, control frameworks, decision-making processes and delivery mechanisms should be made a more explicit topic for leadership development at all levels.
			N	37	Provide all DRAMs and RAMs with an executive briefing on the principles, concepts and applications of asset management and ensure this features in the induction of all new DRAMs and RAMs.
Organisational Structure	55%	59%	N	38	Produce long-term forecasts for the overall workforce along with a strategy for its development across the Routes and business units.
			N	39	Review the impact of the evolving matrix organisation on asset management capabilities of the business and take appropriate actions to enhance this if required.
Organisational Culture	67%	68%	N	40	Evaluate the relationship between the Asset Management Strategy and current culture shaping activities and use the findings to develop a plan to make it more explicit in future.
Competence Management	66%	66%	N	41	Add Asset Management to the list of Capability 'Families' being addressed by the Capability Project and define and enact a plan for the integration of Asset Management competence requirements.
			N	42	Ensure personal objectives are more closely aligned to the achievement of Asset Management objectives.
			Y	43	Continue to implement the approach to providing training, tools, and support to people in Asset Management roles.

4.5.2 Summary of Findings

Overall, the findings for the Organisation & People Group suggest the business is less Centre-biased than it was at the time of the End of CP4 assessment and the Asset Management approach being adopted at that time appears to have been diluted by this.

Within the Procurement & Supply Chain Management subject, Gateway processes and category councils appear to be effective, with the introduction of BRAVO (NR/CP5/IIA/O&P01) offering a major step forward. Routes are positive about new opportunities to exploit local supplier relationships. As yet, the processes that enable dialogue between RAMs and IP, or Route feedback to Asset Policies or the Asset Management Strategy, are not regarded as effective. This may be hampering the ability of the organisation to learn from experience or evaluate performance. Doubts were expressed to us about the status of Procurement professionals as devolution progresses. The apparent cause of this is that as procurement decision-making becomes more devolved, it may become more difficult to pursue solutions which are in the interest of the whole business. The advent of BRAVO should address this by giving better visibility of supplier and contract performance across the business. While contracts for national supply categories (NR/CP5/IIA/O&P02) seem to be well managed, there still appear to be issues relating to pan-route technologies as regards contractor management, close-out and lessons learned.

The current leadership ethos and development processes in the business compare to best in class. This accounts for the increase in the score for Asset Management Leadership since the End of CP4 assessment. Although not geared specifically to the challenge of embedding Asset Management, the current approach to leadership (NR/CP5/IIA/O&P03) should be highly conducive to it. Asset Management does not appear to be central to the thinking about how to drive management performance either, but most of its components are explicit in:

- The Safety, Financial and Leadership behaviours valued by the business.
- Recently started work to define Engineering Capabilities.
- The approach taken to Roles, Responsibilities and Accountabilities set out in engineering management standards.

It does not matter as much that management performance improvement is not focused on Asset Management rather that it is aligned with the Asset Management objectives and Asset Management Strategy of the business, which cannot be said based on the evidence provided in this assessment. The notion, emerging from this assessment, that the Centre provides training, tools and support that the Routes can use to develop their Asset Management approaches and people seems plausible but, in practice, the amount and type of attention DRAMs give to Asset Management appears to depend on their perceptions of it and staff in Routes are largely unaware of what is on offer. For the above reasons, while the score for this subject is slightly ahead of the End of CP4 assessment, it could be

expected to be higher if Asset Management was more central to DRAMs' priorities.

The score for Organisational Structure has increased since the End of CP4. While Asset Management does not appear to be a key driver of organisational design, the business has defined quite clearly how interfaces, roles and relationships should work in the evolving matrix organisation (NR/CP5/IIA/O&P04). On paper, this should enable the kind of cross functional information sharing, collective learning and evidence based decision-making that characterise effective Asset Management although, again, Asset Management is not central to the thinking. However, it is too early to be sure of this or to judge the impact of devolution, which holds down the score. Scores would be higher again in this area if there was a long-term plan for the development of the overall workforce and career paths for people in Asset Management roles were clearer. While Routes have plans taking them through to the January 2018 there is no evidence of a business wide strategy for building the workforce being used to focus, drive and evaluate it.

The score for Organisational Culture is up slightly on the End of CP4 assessment. There is evidence – most notably the 5Cs, the Leadership Conference 2015, the Delivering for the Customer campaign etc. – of a much more focused approach to shaping the culture of the business than in previous assessments when the approach was less well-defined and more experimental. There is also evidence of staff engagement and alignment with culture goals and behavioural objectives in the 2014 and 2015 findings of the Your Voice survey (NR/CP5/IIA/O&P05). This points suggest that greater clarity around organisational culture goals, together with improved leadership at all levels and alignment of incentives with national and route performance indicators (NR/CP5/IIA/O&P06) may be starting to have the desired effect on staff attitudes and beliefs. Whether this translates into the desired workplace performance and behaviour is likely to depend on how well management systems are aligned (the initial work of the Business Critical Rules project appears to have stalled) and how operational management responds. Asset Management is not identified explicitly as a key driver of culture change but the current approach should be conducive to embedding Asset Management thinking and practices effectively.

The score for Competence Management has not changed since the end of CP4 assessment. There is little evidence of a systematic approach to building and managing the competences of people in Asset Management roles that is driven by clear requirements aligned to the Asset Management Strategy. This would normally incorporate recruitment and selection, training and development (from induction through to CPD), career and succession planning, personal objective setting and performance review, deployment and work management, individual records and workforce information. As noted under Organisational Structure, there is no long-term plan for the workforce to guide the design of these activities and the Asset Management competence framework that has been under development in recent years has an uncertain status. The Capabilities project and Engineering Management Standards such as CTM/017 (NR/CP5/IIA/O&P07) could provide opportunities to integrate Asset

Management competence requirements but this is not yet the case. For the time being:

- The contents of personal objectives give little sign that Asset Management is central to learning and development or performance review.
- Asset Management competence requirements are not routinely used in the selection and development of people in Asset Management roles.
- The Centre now provides good quality, flexible Asset Management training options including IAM Certificate courses and e-learning and there is evidence of a steady take up of these from staff in the Routes.

A programme of Masters level short courses for senior staff is being developed and soon to be trialled but awareness of these developments appears to be patchy.

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4.6
Overview of Risk & Review Group

The Risk & Review Group contains all the Asset Management Activities associated with risk assessment, risk management, review and audit of the organisation's Asset Management System, ensuring that the continuous improvement loop is closed. There are nine Subjects in this Group which are:

- **Risk Assessment & Management**
  the policies and processes for identifying, quantifying and mitigating risk and enhancing opportunities.
- **Contingency Planning & Resilience Analysis**
  the processes and systems put in place by the organisation to ensure it is able to continue to operate its assets to deliver the required level of service in the event of an adverse impact such as a major weather incident, act of terrorism or major power failure.
- **Sustainable Development**
  an enduring, balanced approach to economic activity, environmental responsibility and social progress to ensure all Asset Management activities are sustainable in perpetuity.
- **Management of Change**
  the organisations processes for reviewing the impact on its Asset Management system of any major change.
- **Asset Performance & Health Monitoring**
  the processes and measures used by the organisation to assess the performance and health of its assets using performance indicators.
- **Asset Management System Monitoring**
  the processes used by the organisation to review the overall effectiveness of its Asset Management System in delivering its Asset Management Strategy and Objectives.
- **Management Review, Audit & Assurance**
  the organisation's processes for closing the 'plan-do-check-act' cycle and assuring that the organisation is achieving and continually improving its activities.
- **Asset Costing & Evaluation**
  the organisation's processes for defining and capturing maintenance and renewal unit costs and the methods used by the organisation for the valuation and depreciation of its assets.
- **Stakeholder Engagement**
  the methods an organisation uses to engage with stakeholders to articulate different scenarios within its strategic plans.

4.6.1 Score summary

Subject	End of CP4	IIA	Existing Initiative?	Reference	Recommendations
Risk Assessment & Management	65%	62%	Y	44	Complete implementation of the Risk Management Framework at Level 3, ensuring clear integration into Asset Management decision making
			Y	45	Complete the 'Weather Resilience & Climate Change Strategy' and ensure Routes are fully engaged in its implementation and review
Contingency Planning & Resilience Analysis	84%	84%	N/A	N/A	No recommendations identified
Sustainable Development	52%	56%	N	46	Develop a stronger linkage from the new Sustainable Development Strategy to Network Rail's Asset Management System
Management of Change	56%	57%	Y	47	Complete implementation of the MSP4NR process, ensuring full alignment with Asset Management System requirements
Asset Performance & Health Monitoring	80%	82%	N/A	N/A	No recommendations identified
Asset Management System Monitoring	46%	49%	Y	48	Develop and incorporate into the BPMF an Asset Management System review approach which is demonstrably implemented at both Centre and Route levels
Management Review, Audit & Assurance	63%	63%	N	49	More clearly identify and align audit and assurance activity that is directly related to the implementation and review of the defined Asset Management System at both Centre and Routes
Asset Costing & Evaluation	63%	66%	Y	50	Complete introduction of the Rail Method of Measurement and ensure alignment between Network Rail and IP approaches
			Y	51	Complete Activity Based Planning initiative and develop increased alignment between core Network Rail and IP (RMM) approaches
Stakeholder Engagement	63%	65%	Y	52	Complete systemisation of the stakeholder engagement approach at Centre
			N	53	Ensure clear focus on communication to support the Asset Management System is enabled both at Centre and at Routes

4.6.2 Summary of Findings

Overall, the scores for the Risk & Review Group have all advanced or stayed as at the End of CP4 with one exception, Risk Assessment & Management. Overall the Group's score has advanced by 0.9%.

Within the Risk Assessment & Management Subject Network Rail has increased its score at the Centre, which now reflects a fully defined and increasingly well embedded Risk Management Framework, which is described in the Risk Management Policy (NR/CP5/IIA/RR01) and aligns to ISO 31000 and Orange Book requirements. However, this is still being embedded in the organisation, and has been implemented at Levels 1 and 2, with Level 3 in progress (Level 1 = ExCom, Level 2 = Directorates, Level 3 = Business Areas). Two main factors have reduced the overall score as follows:

4) Routes where Level 3 implementation of the Risk Management Framework is not yet complete.

5) Network Rail's climate change strategy currently consists of a range of Route-based 'Climate Change Adaptation Plans' prepared for CP5 (NR/CP5/IIA/RR02). These are currently being developed into a 'Weather Resilience & Climate Change Strategy' which will look out to 2080 (due Spring 2017). A recent audit concluded (NR/CP5/IIA/RR03):

a. there is a lack of ownership across the business of Weather Resilience and Climate Change to manage risk reduction efficiently and effectively;

b. there are no strategic targets and no standardisation and commonality in Weather Resilience and Climate Change information to articulate Network Rail's performance and subsequently to manage risk, inform decision making and prioritise work;

c. no definition, structure for implementation or indicators of success exist for the transition of Weather Resilience and Climate Change to Business As Usual.

The Sustainable Development Strategy was published at the End of CP4 but it was reported that it is not yet fully effective in the organisation or fully understood and implemented by the Routes. The strategy has been subject to a review, with a 'Believable Path' developed to prioritise and focus delivery (NR/CP5/IIA/RR04). This evidence of continual improvement and the imminent refresh of the strategy has justified some improvement in the Subject score. As part of the refresh it is recommended that a stronger linkage to Network Rail's Asset Management System is defined and put in place.

The Management of Change score has improved marginally based on the MSP4NR process (NR/CP5/IIA/RR05), which was implemented about 18 months prior to the assessment, is based on good practice change management processes, and was evidently in use, although not fully embedded. Alongside MSP4NR is a new change governance arrangement with local Route Change Management Boards helping to embed and bring consistency to the change management capability within Network Rail.

The Asset Performance and Health Monitoring score has improved marginally based

on the continued implementation and embedding of the Composite Reliability and Sustainability Indexes (CRI and CSI) (NR/CP5/IIA/RR06). These measures are encouraging a better understanding of how Network Rail manages both shorter- and longer-term objectives together.

The Asset Management System Monitoring score has also improved marginally based on the evidence of ongoing review and continual improvement activities at the Excom and other subservient levels in Network Rail, driven by the new CEO and the implementation of the Business Performance Management Framework (BPMF) (NR/CP5/IIA/RR07). One concern in this area is that, although review and continual improvement is evident, it is not as systematic or as focused on the defined Asset Management System as might be expected. This reflects the observations made in the Organisation & People Group that Asset Management does not appear to be central to the thinking about how to drive management performance. This is evidenced by the fact that Asset Management System review, although defined in the BPMF, was not completed in accordance with the requirements defined and has not yet been effectively implemented within Network Rail. There is also no clear concept of Asset Management System review at the Route level.

The Management Review, Audit & Assurance score has not changed since the End of CP4. Network Rail continues to implement its '3-lines of defence' assurance model (NR/CP5/IIA/RR08), as follows:

- **Level 1 –** self-assurance within the Routes, plus cross-auditing between the Routes.
- **Level 2 –** functional audits which identify systemic issues rather than non-compliance completed by the Centre's Risk, Analysis and Assurance (RAA) group.
- **Level 3 –** Internal Audit which reports to Network Rail's CFO and is focused on the Level 0 Enterprise Risk Assessment risks.

Although this approach is now reasonably well embedded (although it was reported that only IP has fully implemented at Level 2), there is no effective focus on the Asset Management System or feed from this into the Asset Management System management review. Similarly to the final comment under Asset Management System Monitoring, at the Route level there is also no clear concept of Asset Management System audit or review.

The Asset Costing & Evaluation score has improved marginally based on the continued embedding of good practice unit costing methodologies within Network Rail, which has developed internal definitions (MUCs and RUCs) which include alignment of financial and non-financial terminology. Core Network Rail and IP utilise different RUC processes but both are now relatively mature, with the Network Rail approach more 'top down' and focused on understanding overall volumes and costs, and the IP approach more 'bottom up' based on unit cost specification. 60% of capital spend is in IP, and the current Activity Based Planning project is working to harmonise the approaches (NR/CP5/IIA/RR09) by improving the 'bottom-up' definition and accuracy of MUCs .

This is going to be further improved through the introduction of the Rail Method of Measurement, which has now been the default

cost-planning approach for the last 2.5 years and will be formally issued in December 2016 (NR/CP5/IIA/RR10), and will be aligned to the Network Rail RUCs defined in Hyperion and in the 'Cost & Volume Handbook'.

Stakeholder Engagement within Network Rail occurs at all levels, and has had a marginal improvement in score based on developments devolving this activity more clearly to the Routes, and systematising it at the Centre. Within the Routes, increased responsibility for communication has come with devolution, but communication related to the Asset Management System has remained with the Centre. At the Centre, there is a current continual improvement activity to improve and better systemise external stakeholder management processes to align better with the 'increased customer engagement' principle from the CEO. This includes introducing formal stakeholder identification, needs analysis and agreements as required (NR/CP5/IIA/RR11).

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5 Subject-level Findings

Subject-level findings have been summarised in Table 4 on the following pages. The table lists all 39 Subjects, the IIA score for each, and four columns which have been categorised Red, Amber or Green according to the following:

- **Completeness of Process, Artefact or Capability?**
  is the process underpinning this Subject capability fit for purpose, aligned and integrated across the business? Does it reflect current good practice in this Subject?
- **Communicated & Understood?**
  is the process fully communicated and understood by those who need to know? Do they demonstrate a clear understanding of how the process integrates with Network Rail's broader Asset Management System and are they clear on how it will be used to deliver Asset Management objectives?
- **Effectively Applied?**
  is the process effectively applied where it needs to be? Is there evidence that the process is effectively applied where it needs to be applied, and is there evidence that it has been effectively embedded and continually improved over time?
- **Results in Required Outcome?**
  is there evidence that the process has produced the required outcome? If not, is there evidence that this is understood and continual improvement or process refinements are in place?

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Strategy & Planning

No.	Subject	IIA Maturity Score	Rec Refs	Completeness of Process, Artefact or Capability?
1	Asset Management Policy	65%	01,02	Asset Management Policy and System well defined although the Asset Management System is split over several sources/documents.
2	Asset Management Strategy & Objectives	65%	03,04	Asset Management Strategy and Objectives well established and defined but needs updating including more explicit, SMART objectives.
3	Demand Analysis	70%	N/A	Good practice process across HLOS, LTPP, Market Studies, Route Studies and into SRAMPs.
4	Strategic Planning	68%	05	Revised process better defined, with clear milestones and iterations.
5	Asset Management Planning	68%	06	Disaggregation of SBP to Route Plans to DU Plans chain established and in second iteration of improvement preparing for CP6.

	Communicated & Understood?	Effectively Applied?	Results in Required Outcome?
	Asset Management Policy generally well known and understood but clarity of the Asset Management System and specific roles and responsibilities yet to be fully clarified.	Asset Management Policy built in through Asset Policies, Asset Management Strategy, WLC models, etc. Asset Management System risks are managed through governance but less clearly effectively applied by Routes.	Some lack of understanding across Routes and issues around delivering overall plans during current control period but currently subject to review and revision processes.
	Built into new SRAMP (now known as RSP) templates but Routes not highly familiar with strategy and identified difficulties aligning with qualitative objectives.	Issues aligning with overall Asset Management Objectives as not considered SMART by Routes. Application through SRAMPs is positive.	Issues around delivering overall plans during current control period but subject to review and revision processes currently.
	Well understood by those with direct involvement.	Increasingly effective as Route Utilisation Strategies are converted into Route Studies at appropriate times but varies by Route.	Appears positive in applications to date but still being applied across the network.
	Overall milestones understood but some lack of clarity around the specific requirements of each at Route level.	Latest iteration ongoing at time of assessment but progress ahead of previous iterations and supported by clearer overall framework and SRAMP templates.	Significant variance between initial modelled costs and bottom-up Route developed costs subject to ongoing consolidation.
	Plan structures well understood but DU Plans reported as not always used by relevant stakeholders, leading to a loss of link to intended outcomes	Plans not always used to drive resource requirements or for the detailed DU work plans.	Ongoing delivery issues identified during CP5 and lack of demonstration that DU Plans will deliver all of the required outcomes.

Asset Management Decision-Making

No.	Subject	IIA Maturity Score	Rec Refs	Completeness of Process, Artefact or Capability?
6	Capital Investment Decision-Making	77%	07	Clear framework from condition assessment to GRIP, supported by Asset Policies and WLC models.
7	Operations & Maintenance Decision-Making	53%	08,09	Current Maintenance Strategy not well embedded. RBM process well established but no supporting CRO process developed.
8	Lifecycle Value Realisation	63%	10,11	WLC models continue to be enhanced. Aging assets and asset rationalisation processes well established.
9	Resourcing Strategy	63%	12,13	No clear strategy established nationally or at Route level, although deliverability reviews and strategic resource considerations were in place for CP5 SBP
10	Shutdown & Outage Strategy	65%	14	No overall possession strategy identified. Managed at Route level but approach varies by Route.

	Communicated & Understood?	Effectively Applied?	Results in Required Outcome?
	Overall framework well understood and communicated via Asset Policies, GRIP processes, SICA, etc.	Overall framework well applied. Lack of direct Route adoption of WLC models at time of assessment.	Investment plans well verified and managed, linked to wider system by Asset Policies and WLC models.
	Current Maintenance Strategy not well embedded or considered by Routes. New strategy still to be approved and rolled out.	RBM coverage extended but actual application across asset base still limited. No formal cost-risk optimisation application.	Current Maintenance Strategy being replaced. Learnings being built into Asset Policy revisions.
	Generally well captured in Asset Policies. Use of WLC tools not fully understood at Route level but ongoing work to improve this such as Asset Lifecycle Templates and Cobalt.	WLC models systematically applied at centre and in support of Routes. Ageing assets and asset rationalisation managed through Asset Policies.	Modelling capability better than ever, supported by learning from improved data sets for asset condition and deterioration. Asset Policies iteratively improved, but lack of portfolio optimisation.
	Central plant and access booking processes well understood but overall strategy and use of human resources not communicated.	Resources reported as managed at DU level with little strategic guidance, Phase 2b/c considered to be last resourcing approach applied.	No clear strategy to measure against and delays in delivery noted during CP5 with specific issues such as Signalling skills identified.
	Integrated Access Planning group working across industry and with Routes. Process reasonably understood at various levels of involvement.	Improved cross-industry stakeholder involvement but Route specific at detail level with no standard optimisation approach and IAP tools not currently being used by Routes.	No clear best practice or most effective and efficient way to optimise access arrangements but each Route working more effectively with TOC/FOCs and other stakeholders and subject to significant review.

Lifecycle Delivery

No.	Subject	IIA Maturity Score	Rec Refs	Completeness of Process, Artefact or Capability?
11	Technical Standards & Legislation	58%	15,16,17	Central H&S compliance register used for broader range of requirements and no overall process for identifying, assessing and incorporating external regulations and standards
12	Asset Creation & Acquisition	75%	18	Good practice and well established project management methodology in place (GRIP) which is continually improved
13	Systems Engineering	69%	19,20	Good practice and well established systems engineering approach embedded in GRIP methodology, and the Systems Analysis Group
14	Configuration Management	53%	21	There are a range of configuration management approaches within NR, which are not necessarily consistent or appropriate, and there is no overall framework for when such an approach would be appropriate
15	Maintenance Delivery	78%	N/A	Processes for maintaining the assets are well established and embedded
16	Reliability Engineering	51%	22,23,24	Network Rail has built up an effective level of capability in this area over the years, focusing on the development of the NIRG and the RIRGs. However, reliability initiatives are not coordinated as part of an overall Reliability Growth Plan aligned to the AM objectives.

	Communicated & Understood?	Effectively Applied?	Results in Required Outcome?
	Routes assume this is dealt with by Centre, while Centre does not have ready access, on an ongoing basis, to a definitive record of NR's compliance status with external regulations and standards	Network Rail lacks a systematic approach to understanding its compliance status with external regulations and standards	Lack of clarity with respect to identifying and funding rectification of non-compliances for CP5 (e.g. Electricity at Work Act)
	Good understanding of GRIP requirements within the IP and supplier community as required	Some variation in the quality of GRIP application, and no GRIP programme approach, which are being rectified through the P3M3 programme	Evidence of specific project and programme failures, and general concern over meeting planned milestones and costs
	Good understanding of GRIP requirements within the IP and supplier community as required. Good understanding of Systems Analysis Group's products where needed	Some variation in the quality of GRIP application, which is being rectified through the P3M3 programme – specifically the iELC initiative. Some System's Analysis Group processes not mandatory.	Two examples – Level of Control (LOC) procedure has not been consistently applied and Route Requirements Documents (RRDs) are rarely effectively filled in (e.g. specifying standards or specific solutions to meet rather than specifying project requirements)
	No clear understanding of what configuration management is amongst Network Rail staff, with some exceptions	No process to apply – individual asset change management processes to support various systems (e.g. Ellipse, Relay Database, OHL Protection)	Reliance on reactive verification of configuration – e.g. validation of Project Requirements Specification (PRS) documentation if sourced from Ellipse
	Processes for maintaining the assets are well established and embedded	Processes for maintaining the assets are well established and embedded	Processes for maintaining the assets are well established and embedded
	The NIRG / RIRG approach is well communicated and understood, although some of the specific Systems Analysis Group products are not so well communicated or understood	Central reliability group has been disaggregated across the new engineering organisation, but individual roles have not yet all been filled, and a lack of clarity about responsibilities and objectives for reliability improvement exists within all engineering disciplines	NR's headline reliability performance has continued to improve over recent years, although the NIRG / RIRG focus has shifted from managing underlying reliability through to Service Affecting Failures (SAFs)

Lifecycle Delivery *(continued)*

No.	Subject	IIA Maturity Score	Rec Refs	Completeness of Process, Artefact or Capability?
17	Asset Operations	75%	N/A	Processes for operating the assets are well established and embedded
18	Resource Management	60%	25	Resources are managed at the Route, and specifically at the DU level but alignment with the AM plan is not evident
19	Shutdown & Outage Management	63%	26	Processes for managing possessions are well established, but not within an overall Possession Strategy
20	Fault & Incident Response	74%	N/A	Processes for responding and rectifying faults and failures on the assets are well established and embedded
21	Asset Decommissioning & Disposal	78%	N/A	Processes for decommissioning and disposing of assets are well established and embedded

	Communicated & Understood?	Effectively Applied?	Results in Required Outcome?
	Processes for operating the assets are well established and embedded	Processes for operating the assets are well established and embedded	Processes for operating the assets are well established and embedded
	Resources are managed at the Route, and specifically at the DU level but alignment with the AM plan is not evident	Resource planning is generally still a 'top-down' activity which is not driven by 'bottom-up' workload requirements perhaps as strongly as it could be	Resource planning often affects the deliverability of NR's plans, often with reliance on overtime and third parties to meet requirements
	Processes for managing possessions are well established but not always executed effectively	Lack of formal process for establishing lessons learned and continually improving approach	Lack of formal process for establishing lessons learned and continually improving approach
	Processes for responding and rectifying faults and failures on the assets are well established and embedded	Processes for responding and rectifying faults and failures on the assets are well established and embedded	Issues with the implementation of the Fault Code Lookup (FCL) iPhone App are still not fully resolved
	Processes for decommissioning and disposing of assets are well established and embedded	Processes for decommissioning and disposing of assets are well established and embedded	Processes for decommissioning and disposing of assets are well established and embedded

Asset Information

No.	Subject	IIA Maturity Score	Rec Refs	Completeness of Process, Artefact or Capability?	
22	Asset Information Strategy	84%	27,28	Asset Information Strategy completed, embedded and continually improved. Next update important to capture current state.	
23	Asset Information Standards	75%	29,30	Suite of Asset Information Standards in place. Provide detail of necessary data model to meet Asset Information Strategy. Further development required.	
24	Asset Information Systems	65%	31,32	Extensive suite of IT systems in place to serve the Asset Management process and decision needs of Network Rail staff, but the scope of IT systems needs to be broadened to include DSTs	
25	Data & Information Management	65%	33	Existing tactical data management processes are defined, but scope is limited. However, significant change is expected with new ADG framework.	

	Communicated & Understood?	Effectively Applied?	Results in Required Outcome?
	Routes aware of Asset Information Strategy, utilised in certain forums and requirements exercises. Further communication, embedding of revised version recommended.	Asset Information Strategy has been well applied in guiding ORBIS programme and other initiatives. Parallel projects ('Better Asset Knowledge') and IT strategies require greater alignment. Better feedback mechanism from Routes.	Asset Information Strategy provides alignment to Asset Management System, provides high level of information needs, and conveys improvements. Required update to present latest progress and revised data management approach.
	Routes and Central programmes aware of standards and their use. Greater clarity on full suite of Asset Information Standards	Specific standards related to ORR A2 data quality requirements effectively applied. Logical Data Model and wider attributes (i.e. Risk, Cost) not fully applied.	Good base line model to define the data attributes that Network Rail require is in place. Effectively used in data quality processes. Scope of Asset Information Standards requires extending.
	Network Rail staff understand in general which IT systems provide which elements of the Network Rail information model, and who is responsible for that system. Some improvement in communicating the end to end system process is required.	IT systems are generally well implemented to support process and decisions. Some improvements required in seamlessly switching between systems to support a requirement. Visualisation and accessibility improvements expected in new IT system go-lives	The majority of users are satisfied with key systems, but further integration, and increased scope of decision support tools is required.
	The routes understand current data quality management processes, especially the ORR A2 measures. The emerging ADG framework is not well understood.	Current data quality measures are well applied. Including some data validation at point of entry. Scope of data quality audits and reports could be increased.	Data quality is improving, based on tactical initiatives and IT systems enhancement. Some asset classes and 'information layers' require better data quality management.

Organisation & People

No.	Subject	IIA Maturity Score	Rec Refs	Completeness of Process, Artefact or Capability?
26	Procurement & Supply Chain Management	73%	34,35	Gateway and BRAVO processes well defined and aligned to good practice
27	Asset Management Leadership	73%	36,37	Current leadership ethos and development processes compare to best in class
28	Organisational Structure	59%	38,39	Network Rail has defined quite clearly how interfaces, roles and relationships should work in the evolving matrix organisation but this is still being embedded.
29	Organisational Culture	68%	40	Evidence of a much more focused approach to shaping the culture of the business than in previous assessments when the approach was less well-defined
30	Competence Management	66%	41,42,43	The Asset Management competence framework that has been under development in recent years is established but not yet fully communicated

	Communicated & Understood?	Effectively Applied?	Results in Required Outcome?
	Routes are positive about new opportunities to exploit local supplier relationships	Processes for dialogue between RAMs and IP or Route feedback to Asset Policies or AM Strategy are not considered fully effective	National supply category management effective, but still issues relating to pan-route technologies with regard to contractor management, close-out and lessons learned
	Attention DRAMs give to AM depends on their perceptions of it and staff in Routes are largely unaware of what Centre has to offer	Centre provides training, tools and support that the Routes can use to develop their AM approaches and people	Leadership process not geared specifically to the challenge of embedding AM
	Clarity should enable the kind of cross functional information sharing, collective learning and evidence based decision-making that characterise effective AM	Too early to be sure of this or to judge the impact of the new freedoms that Routes now have to pursue their own approach	The lack of a long-term plan for the development of the Workforce, including the evolution of AM roles, means that AM career paths are unclear
	Evidence of staff engagement and alignment with culture goals and behavioural objectives in the 2014 and 2015 findings of the Your Voice survey	Greater clarity around organisational culture goals, improved leadership at all levels and alignment of incentives with national and route performance indicators may be starting to have the desired effect on staff attitudes and beliefs	Driving the desired workplace performance and behaviour is dependent on how well management systems are aligned and how operational management responds
	The contents of personal objectives give little sign that Asset Management is central to learning and development or performance review	Asset Management competence requirements are not routinely used in the selection and development of people in Asset Management roles	No long-term plan for the workforce to provide context or give direction to a systematic approach to developing and managing AM competences

Risk & Review

No.	Subject	IIA Maturity Score	Rec Refs	Completeness of Process, Artefact or Capability?
31	Risk Assessment & Management	62%	44,45	Fully defined and Risk Management Framework, which is described in the Risk Management Policy and aligns to ISO 31000 and Orange Book requirements
32	Contingency Planning & Resilience Analysis	84%	N/A	Very mature processes for managing operational and business contingencies aligned to good practice
33	Sustainable Development	56%	46	Sustainable Development Strategy was published at the End of CP4 and aligned to good practice and is in the process of being reviewed
34	Management of Change	57%	47	MSP4NR process, implemented about 18 months prior to the assessment, is based on good practice change management processes
35	Asset Performance & Health Monitoring	82%	N/A	CRI / CSI / SHEP / Engineering Assurance Reports examples of measurement of asset stewardship, and Asset Reporting Manual governs how Network Rail reports to ORR

	Communicated & Understood?	Effectively Applied?	Results in Required Outcome?
	Risk Management Framework implemented at Levels 1 and 2, with Level 3 in progress (Level 1 = ExCom, Level 2 = Directorates, Level 3 = Business Areas). Not yet integrated with the Weather Resilience and Climate Change Strategy.	Where communicated and understood the application of the Risk Management framework is effective. Not yet integrated with the Weather Resilience and Climate Change Strategy.	Where communicated and understood the application of the Risk Management Framework enables a clear and flexible focus on managing risks
	All personnel who are required to implement contingency plans are trained and drilled	Contingency plans are rehearsed and continually improved, and occasionally implemented	Evidence that the application of contingency plans do not always result in desired outcomes, however lessons are learnt and changes made
	Reported that Sustainable Development Strategy is not yet fully understood in the Routes	The strategy has been subject to a review, with a 'Believable Path' developed to prioritise and focus delivery	Consistent implementation of the Sustainable Development Strategy is not yet evident, or feeding back effectively into the AM System
	New change governance arrangement with local Route Change Management Boards being introduced	Several examples of implementation evidenced throughout the assessment, but none complete	Too early to gauge whether the implementation of MSP4NR is achieving required outcomes
	Good evidence at Centre and Route levels of a clear understanding of all relevant KPIs and reporting requirements	Core monitoring and reporting completed by the Risk Analysis and Assurance group.	In general, regulatory reporting achieves desired outcomes, however opportunities exist to develop more sophisticated measures which take more account of asset lifecycles

Risk & Review *(continued)*

No.	Subject	IIA Maturity Score	Rec Refs	Completeness of Process, Artefact or Capability?
36	Asset Management System Monitoring	49%	48	Review activities at all levels in Network Rail, driven by the new CEO and the implementation of the BPMF, but no focus on the Asset Management System
37	Management Review, Audit & Assurance	63%	49	Network Rail continues to implement its '3-lines of defence' assurance model, based on good practice approaches
38	Asset Costing & Valuation	66%	50,51	Good practice approaches in place (such as RMM) with Network Rail and IP in process of aligning and ABP project rectifying shortfalls in MUCs
39	Stakeholder Engagement	65%	52,53	Stakeholder engagement processes in Network Rail are generally mature but not particularly systematised – Centre initiative to align better with the 'increased customer engagement' principle from the CEO

	Communicated & Understood?	Effectively Applied?	Results in Required Outcome?
	BPMF well understood by all those who are governed by its requirements, however AM element of BPMF was not implemented at time of assessment	Management review is not as systematic or as focused on the defined Asset Management System as might be expected, particularly at Route level	Development and continual improvement of the Asset Management System at Centre and Route is not as clearly defined as it might be
	The '3-lines of defence' assurance model is well understood by all of those who are charged with its implementation	Some concern expressed that IP was the only are that had full Level 2 implementation, and a lack of focus on the Asset Management System	Monitoring and review of the Asset Management System at Centre and Route is not as clearly defined as it might be
	Range of approaches reasonably well understood, but evidence (particularly with MUCs) that this is not always the case	RMM implementation appears to be successfully concluding over 2.5 year timescale, while implementation of MUCs is being rectified through ABP project	Unit costs are still not reliable enough across Network Rail to ensure reliable cost estimating and management of costs against budgets
	Because stakeholder engagement processes in Network Rail are generally mature but not particularly systematised understanding of requirements varies	In general, stakeholders are effectively engaged, but effectiveness of this is often difficult to gauge and understand	It is generally understood at the Centre and at the Route level that improved stakeholder engagement would help to improve outcomes across a range of activities

6 Conclusions and Recommendations

6.1 Conclusions

The overall conclusions to this assessment are:

1) Network Rail has made progress within five of the six Groups, improving scores in all but Lifecycle Delivery. Overall, this has translated into a marginal improvement in the overall score from 66.0% to 66.7%. As described in Section 1.5 organisations typically progress quickly through the lower maturity states, but then find progression through the higher maturity states slower and more of a challenge. In addition organisations may experience dips in maturity when operating at the higher levels of maturity before improving again. Network Rail continues to work on the development of its Asset Management System and approach and it is important at this stage to ensure completion of the initiatives that are in flight to ensure benefits are realised.

2) The Asset Information Group has achieved the 72% target for the January 2018. All other Groups are at 64% or more, but Network Rail faces a challenge to achieve the 72% target by the January 2018 for the remaining Groups.

3) The Lifecycle Delivery Group is the only Group to have registered a reduction in Group score, albeit marginal. This is driven by worse than expected scores in Technical Standards & Legislation, Asset Creation & Acquisition, Systems Engineering, Configuration Management and Reliability Engineering. There are some common themes running through the last four Subjects listed, primarily the implementation of the P3M3 initiative and devolution to the Routes. The difference for Technical Standards & Legislation due to an increased focus on compliance issues that has exposed weaknesses in Network Rail's approach that were not recognised or reported at End of CP4.

4) The impact of devolution on Network Rail's Asset Management System(s) continues to embed. A number of risks were identified at the time of the CP5 IIP / SBP assessments, including:

a. Confusion about the split in responsibilities between the Centre and the Route, in particular relating to the application of Asset Policies.

b. Inadequate Asset Management capabilities and experience in the Routes necessary to undertake effective decision-making in the Routes

c. Divergence in the Routes from Network Rail's overall Asset Information Strategy leading to a fragmented approach to the collection, management and analysis of Asset Information

d. Short-term incentives for delivery of train performance could adversely affect long-term Asset Management decision-making

Although some progress has been made at Routes since the End of CP4, we believe that these risks are still material, and they continue to be recognised and managed at both a Centre and Route level.

5) Asset Management Strategy & Planning: The role of Network Rail's Asset Management System in managing these risks is critical, but at the time of the assessment was being reviewed and updated. This work is part of a long-standing improvement action. The Asset Management Policy, Strategy and Objectives and the associated framework which will more effectively link the Centre to the Routes via improved roles and responsibilities was not yet complete or embedded. In the meantime, planning for CP6 is being undertaken, but the effect of the improvements to the Asset Management System on the quality of the plans cannot yet be judged.

6) Asset Management Decision Making: Network Rail's capabilities in decision making continue to improve, particularly (on the capital side) with respect to whole-life cost models and the application of Asset Policies. However, with respect to defining maintenance requirements, the new maintenance strategy was due for launch in Autumn 2016 and so not yet in place at the time of the assessment, but appears to be a significant improvement on the existing document. Once the revised maintenance strategy is in place to direct decision making and is fully effective we would expect to see a defined strategy for resourcing, informed by the Activity Based Planning work and driven by justified work volumes, linked to Route level plans and achievement of outcomes.

7) Lifecycle Delivery: Network Rail is currently implementing a major improvement programme based on the P3M3 standard which is addressing several known issues within the GRIP and Systems Engineering areas, which is approximately 50% complete. An increased focus on compliance issues has exposed weaknesses in Network Rail's approach that were not recognised or reported at End of CP4 and this has affected the Technical Standards & Legislation score. Additionally the effect on roles and responsibilities within the Centre's Reliability Engineering capabilities has affected that score. However, all these issues are transitory and have the potential to be resolved by January 2018.

8) Asset Information: Network Rail's Asset Information Strategy continues to be a leading area, however, a refresh and re-alignment of documents and their presentation is needed, and is understood

to be underway as part of the EBAK initiative and it is important that this is continued. Asset Information Standards have a good foundation but require greater clarity on the suite of documents and models that define the Network Rail Asset Information Model. This includes further development of quality measures and an extension and completion of the attribute model found in existing Asset Information Specifications. The Asset Information Systems subject group shows limited increase in maturity, but this is due in part to the large volume of IT systems projects still in-flight at the time of assessment.

9) Organisation & People: Overall, the findings suggest that Network Rail is less Centre-biased than it was at the time of the End of CP4 assessment and the Asset Management approach risks unwarranted divergence across the Routes. Scores reflect that devolution has involved changes and created diverse views of the role of Asset Management that have held back progress within the Group. However, the leadership ethos and development process compare to best-in-class including leadership behaviours, engineering capabilities and role clarity. Although not geared specifically to the challenge of embedding Asset Management these provide the kind of framework within which asset management thinking and practices could be expected to flourish.

10) Risk & Review: All scores within the Risk & Review Group have improved with the exception of Risk Assessment & Management. Network Rail now has a fully defined and increasingly well embedded Risk Management Framework which aligns to ISO 31000 and Orange Book requirements, however, this is still being embedded. This Subject also includes Network Rail's climate change planning and adaptation capabilities, which since setting out Route level strategies early in CP5, have not yet been effectively integrated into Network Rail's funded plans. The other review and continual improvement Subjects in this Group will also benefit from the revised Asset Management System described under Conclusion 5.

6.2 Recommendations

The overall recommendations to this assessment are:

1) By April 2017 Network Rail to review the findings and specific Group level conclusions and recommendations, and develop a programme to implement the required recommendations as part of the established Asset Management Improvement Plan (AMIP).

2) To adopt to a 'progressive assurance' approach over calendar year 2017 for assessing the Network Rail's Asset Management capabilities through ongoing discussions with relevant personnel and review of evidence.

Appendix A

Interviewees
Centre

Centre	Job Title
Amanda Hall	Systems Engineering & CM
Andrew Bradford	Lead Internal Auditor
Andy Kirwan	Head of Asset Management Development
Barny Daley	Interim Chief Engineer
Brian Haddock	National Client for Weather & Climate Change
Brian Tomlinson	Director, Risk, Analysis & Assurance STE
Chris Madden	Asset Management & Analysis
Dan Mandoc	Professional Head - Telecoms [NRT]
Darren Nock	Head of Engineering [IP Signalling]
David Godley	Chief Track & Lineside Engineer
David Johnson	Railway Signalling Engineer
David Ollerhead	Head of Business Change
Davin Crowley-Sweet	Professional Head of Asset Data & Information
Ewa Hudson	Programme Manager (Change)
Fiona Dolman	Capacity Planning Director
Fiona Taberham	
Giles Tottem	Programme Manager
Graham Hopkins	STE Director
Helen Hunter-Jones	Head of Group Risk
Huw James	Programme Management Director
Iain Flynn	Head of Network Operations Business Planning
Ian Mitchell	Quality Assurance
Erwin Klumpers	Finannce & Business Management [NRT]
James Angus	Head of Analysis & Forecasting
James Wood	Financial Controller (Process & Reporting)
Jane Austin	
Jason Saxon	
Jeremy Morling	Professional Head Command, Control & Signalling
Jo Dunn	[IP]

Centre	Job Title
John Smith	Transformation Programme Manager
Katrina Law	Director of Materials & Logistics
Ken Owen	Head of Systems & Service Management
Kevin Shelton	Strategic Planning Manager
Kris Alexander	
Mark Carne	Chief Executive
Mark Sleet	Timetable Production Manager [Anglia]
Matt Skinner	Principal Engineer STE
Melanie Grizzle	Principal Modelling Engineer
Millind Joshi	Asset Management
Paul Ashton	Professional Head of Operations
Paul Harwood	Strategy & Planning Director
Paul Smith	National Telecoms Asset and Performance Manager
Pete Ansell	Head of Planning & Programme Integration
Phil Doughty	Senior OLE Design Engineer
Phillip Hufton	Managing Director
Richard Geldart	Programme Manager, Weather Resilience & Climate Change
Rob Ireland	Chief Control, Command & Signalling Engineer
Robert Ampomah	Reliability & Improvement Manager [Track]
Sam Hoe-Richardson	Head of Environment & Sustainable Development
Scot Marchbank	Director, External Relations
Simon Gyde	Head of Buildings & Architecture STE
Sin Sin Hsu	Programme Engineering Manager [IP Track]
Stephen Blakey	Commercial Projects Director
Tim Craddock	HR Director, Organisational Development & Network Operations
Tim Kersley	Head of Asset Management Strategy
Toby Robins	Programme Manager

LNW

LNW	Job Title
Alex Pattison	System Support Manager
Andrew Briggs	Route Planning Manager
Andrew Clode	Contracts & Procurement Manager
Carole Bayliss	SRAM [Track & Structures]
Craig Green	Senior Asset Enginer [Renewal & Enhancement]
David Golding	Principal Strategic Planner
David Webb	RAM [Track]
Ellen Wintle	SRAM [SP&B]
Graham Wire	RAM [Signalling]
James Dean	DRAM
James Wood	Financial Controller (Process & Reporting)
Jeff Southam	Infrastructure Maintenance Engineer
John Larkin	Route Infrastructure Maintenance Manager
Katie Innes	Environment Specialist
Kevin Thurlow	Track Engineering Data Analyst
Lee Jones	Programme Manager
Margaret Cheetham	SAE [Track]
Mark Evans	Works Delivery Programme Manager
Mark Wheel	SAE [Structures]
Martin Jurkowski	Principal Sponsor CP6
Neil Jones	RAM [Structures]
Richard Horobin	Current Operations Manager
Rick Clark	Programme Manager (Change) [Business Improvement]
Roisin Nelson	Operations Risk Control Co-ordinator
Sarah Stephens	Compliance & Assurance Advisor
Simon Bishop	SAE [Structures]
Simon Evans	Head of Communications (LNW)
Sin Sin Hsu	Programme Engineering Manager [IP Track]
Steve Pierce	SAE [Structures]

Southeast

Southeast	Job Title
Alan Ross	DRAM
Chris Rowley	Principle Strategic Planner
Cliff Elsey	RAM E&P
Daniel Matthews	Current Operations Manager
David Jowett	Compliance & Assurance Advisor
David Peters	Route Planning Manager
Ian Simpson	Programe Manager
Jenny Richardson	Lead HR Businss Partner
John Sidebotham	Programme Manager Change
Julian Salmons	Systems Support Manager
Karl Flinn	Performance Improvement Manager
Marc Wade	Senior Asset Engineer [Track]
Mark Budden	WD Programme Director
Monica Gaisie	Deputy Contracts and Procurement Manager
Paul Buckley	Thameslink Programme Engineering Manager
Paul Percival	RAM Signalling
Peter Jackson	IMDM Brighton
Philip Jeyes	RAM Track
Pritesh Patel	Route Financial Director
Rene Tym	Digital Railway & Thameslink Operations Strategy
Richard Thorp	IMDM Orpington
Shaun Stevely	Incident Management Specialist
Simon Morgan	Route Delivery Director IP
Steve Prouten	Senior Asset Engineer [Signals]
Terry Shortan	RAM Buildings
Trevor Campbell	Signal & Telecoms Maintenance Engineer
Wendy Morgan	RASIM

Scotland

Scotland	Job Title
Adrian Murray	RASIM
Anne-Marie Harmon	Programme Manager (Change)
Ben Edwards	DRAM
Ben Hall	Head of Communications
Billy Cameron	Route Support Manager
Billy Mckay	Programme Manager IP SP&E
Chris Fachie	Renewal & Enhancement Engineer E&P
Colin Lamb	RAM E&P
David Kerr	Principal Route Planner
Ian Smith	IME Edinburgh
John McCormick	Compliance & Assurance Advisor
Martin McMullen	Asset Engineer Track
Martyn Greig	Current Operations Manager
Mathew Spense	IPSE Head of Engineering
Paul Wyatt	Financial Controller
Rob Lacey	RAM Track
Scott Coulter	Finance
Simon Constable	HRSE
Steve Muirhead	RAM signalling
Stevie McRavey	IP PL track
Trudi Hornal	Contracts & Procurement Manager

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Appendix B

Selected Evidence

Strategy & Planning Reference	Evidence
NR/CP5/IIA/SP01	Network Rail Asset Management Policy March 2014
NR/CP5/IIA/SP02	STE_Away_Day_21.07.2016_final.pptx
NR/CP5/IIA/SP03	AMS Combined.doc
NR/CP5/IIA/SP04	Network Rail Response to the Shaw Scope Report.pdf
NR/CP5/IIA/SP05	Network Rail Asset Management Strategy October 2014
NR/CP5/IIA/SP06	Route Strategic Plan template.docx
NR/CP5/IIA/SP07	Copy of STE – 04 – AM Excellence – L1.xlsm
NR/CP5/IIA/SP08	Long Term Planning Process factsheet.pdf
NR/CP5/IIA/SP09	Freight Market Study.pdf
NR/CP5/IIA/SP10	Scotland Route Study.pdf
NR/CP5/IIA/SP11	NR-L1-ELP-27000 issue 2-1 After stakeholder review – changes tracked.pdf
NR/CP5/IIA/SP12	Integrated Management System for excomm April 2016 vs2 (2).docx
NR/CP5/IIA/SP13	Ashford RAMP V1.1.pdf
NR/CP5/IIA/SP14	Summary Capex and Volumes incl. RM (RF11) SE Summary
NR/CP5/IIA/SP15	Volume Delivery Analysis.xlsx (for SE Route)
NR/CP5/IIA/SP16	Periodic Volumes Report P2 (for LNW Route)
NR/CP5/IIA/SP17	South East - Under Delivery of Renewals Volumes
NR/CP5/IIA/SP18	ORR Volumes P13 1314 v3

Decision Making Reference	Evidence
NR/CP5/IIA/DM01	NR-L1-ELP-27000 issue 2-1 After stakeholder review – changes tracked.pdf
NR/CP5/IIA/DM02	NR_L1_INI_PM_GRIP_100.pdf
NR/CP5/IIA/DM03	Asset Lifecycle Profile – Intro.docx
NR/CP5/IIA/DM04	Network Rail Maintenance Strategy.docx
NR/CP5/IIA/DM05	RBM Dossier – CP5.doc
NR/CP5/IIA/DM06	LCC Manual.pdf
NR/CP5/IIA/DM07	6b Copy of Signal Tester Demand Xmas V2.3.xls
NR/CP5/IIA/DM08	2b DWWP Standard.pdf
NR/CP5/IIA/DM09	SWP Implementation Brief.doc
NR/CP5/IIA/DM10	Industry Framework – Final.pdf
NR/CP5/IIA/DM11	Periodic Business Review Meeting 28 April – v 3 RD.pdf

Lifecycle Delivery Reference	Evidence
NR/CP5/IIA/LD01	DST_002_Compliance evaluation_ v1.8b_shared with Legal
NR/CP5/IIA/LD02	Huw James RD PD Briefing core V5
NR/CP5/IIA/LD03	GRIP for Programmes, Release 1, (Draft), April 2015
NR/CP5/IIA/LD04	Crossrail Authorisation Tracker
NR/CP5/IIA/LD05	LoC - Interim Work Instruction
NR/CP5/IIA/LD06	One Page High Level Summary – Engineering Lifecycle
NR/CP5/IIA/LD07	Management of Safety Related Infrastructure Records (NR/L2/INF/02018)
NR/CP5/IIA/LD08	Level 2 Business Process – Product design for reliability (NR/L2/RSE/0005)

Asset Information Reference	Evidence
NR/CP5/IIA/AI01	NR Asset Information Strategy - Vision V2 0
NR/CP5/IIA/AI02	ORBIS CP6 Planning - Working Group Meeting MAR v0 06
NR/CP5/IIA/AI03	ORBIS CP6 Planning - GDR Storyboard v0.19 jan 2016
NR/CP5/IIA/AI04	Track AIS v2 30
NR/CP5/IIA/AI05	Logical Data Model Reference and Guide – Asset Information Specification Data Model (DR_DA_LDM_1.5 ORBIS)
NR/CP5/IIA/AI06	P03 Data Quality Measurement Report – Southeast
NR/CP5/IIA/AI07	Data Quality User Guide v1.1
NR/CP5/IIA/AI08	Asset Data Governance and Assurance_ FrameworkGuidance_v 1 8

Organisation & People Reference	Evidence
NR/CP5/IIA/O&P01	Bravo System demonstration
NR/CP5/IIA/O&P02	Procurement Categories
NR/CP5/IIA/O&P03	Leadership Conference 2015: Pre-reading documents
NR/CP5/IIA/O&P04	Delivering for our Customers: Plan Architecture
NR/CP5/IIA/O&P05	Your Voice 2015 Key Findings Summary
NR/CP5/IIA/O&P06	National Scorecard 2016/17 and Route Scorecard – Anglia
NR/CP5/IIA/O&P07	NR/SP/CTM/017

Risk & Review Reference	Evidence
NR/CP5/IIA/RR01	Level 1 – Network Rail Risk Policy – NR/L1/RSK/001
NR/CP5/IIA/RR02	South-East-Route-WRCCA-Plan
NR/CP5/IIA/RR03	STE BAC L1 Report - July 2016 FINAL
NR/CP5/IIA/RR04	Board SHE April 2016 - Environment and Sustainability Strategy
NR/CP5/IIA/RR05	Key MSP4NR slides
NR/CP5/IIA/RR06	CRI Report 2016-17 P03 (final)
NR/CP5/IIA/RR07	BPMF Handbook v2.0 Final Draft
NR/CP5/IIA/RR08	Devolution Handbook
NR/CP5/IIA/RR09	ABP_Projects_FY1617
NR/CP5/IIA/RR10	Rail Method of Measurement – July 2014 Consultation Issue
NR/CP5/IIA/RR11	CRM Excom note final