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RISK MANAGEMENT

Risk Management Strategy

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1 Purpose

The purpose of this document is to define the Risk Management Strategy for Crossrail. It will:

- Set the direction, objectives, scope and priorities of risk management;
- Indicate how risk management supports the strategy, aims and objectives of the organisation;
- Take into consideration the context, key stakeholders and the organisation's existing risk management capability and maturity;
- Outline how the active management of risk will be integrated into the culture of Crossrail;
- Outline how Crossrail Limited (CRL) will establish the path to becoming the exemplar of best practice in Risk Management;
- Be documented and approved by senior management; and
- Be communicated effectively.

2 Background

CRL in its capacity as programme manager, systems integrator and delivery agent bears the majority of risk associated with the delivery of Crossrail, with limited opportunity to transfer risk to third parties and with no right of relief offered by the Project Development Agreement. Consequently, the management of risk is critical to the success of CRL and the Crossrail programme.

In recognition of this, the Executive has initiated the development of risk management capability that reflects the transition of the programme into the delivery phase and the engagement of our Delivery and industry Partners. The initial paper presented to the Executive Committee on 19 May 2009 described a plan in three phases:

1. Foundation Setting – complete June 2009;
2. Capability Building – complete September 2009;
3. Capability Enhancing – complete April 2010.

The Foundation Setting phase of risk management development has been completed successfully and this Risk Management Strategy is its principal output. The document provides the rationale and basis of the Capability Building phase which follows.

The Risk Management Strategy and the detailed plans and processes that result will form a key component of the Delivery Strategy for Crossrail.



3 Scope

This Risk Management Strategy will apply to CRL, the Project Delivery Partner and to all CRL's Industry Partners. It will be used as information for the wider Crossrail supply chain.

Crossrail has taken the approach of integrating Health and Safety risk into its overall risk management process. This may differ from other railway models where the safety risk model is separate from the business risk model.

As a result, the scope of the strategy includes the management of all categories of risk, both during design and construction as well as during commissioning and operation, including:

- Health and Safety risks;
- Business Risks including Funding and Delivery risks;
- Engineering and Design risks;
- Interface and Logistics risks;
- Environmental risks;
- Quality risks;
- Business Continuity risks; and
- Security risks (including Fraud).

Risk Management at Crossrail encompasses both threats and opportunities. Opportunities will be managed as part of our Value Management process.

4 Objectives

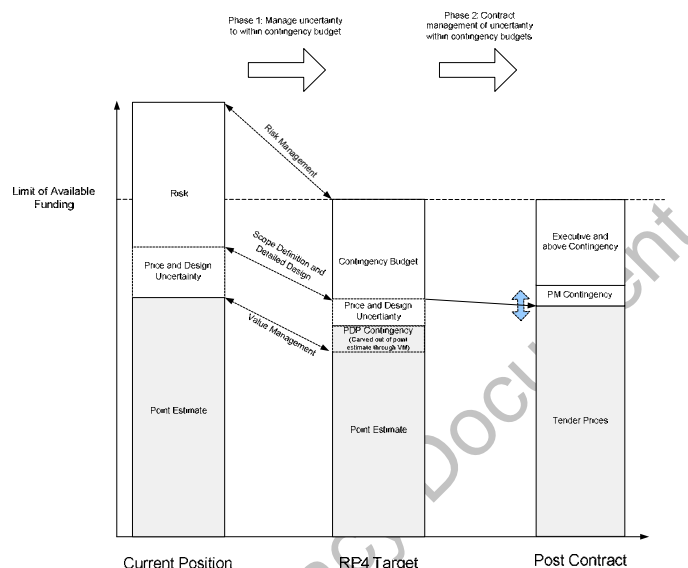
Crossrail's objectives in relation to the management of risk are to:

- Embed risk management as a fundamental tenet for the management of all aspects of the programme; Integrate risk management into CRL's routine management activity and ensure that uncertainty and risk are considered in decision making;
- Provide a detailed understanding of the risks to the programme and their aggregate effect on cost, schedule and output targets;
- Support the identification and implementation of risk response actions that are prioritised, effective and timely, in order to constrain threats to acceptable limits;
- Ensure clear responsibility for the management of risk between CRL and its partners, giving accountability for the execution of risk management activities to specific individuals within each organisation;
- Develop a unified, consistent risk management culture throughout CRL, its partner organisations and the wider Crossrail supply chain.

4.1 Delivering within funding limits.

A key objective of CRL's risk management is to constrain threats to acceptable levels (i.e. within the available funding). The available funding was established on the basis that risk will be mitigated.

Planned development of scope, schedule, procurement strategy and design development are all expected to reduce risk exposure. As part of this, active management of risk and uncertainty must ensure that the reduction targets are achieved. Value Management will also be required to reduce the point estimate and increase the available contingency.



Delivering within funding limits

1. Manage uncertainty to be within the contingency budget at Review Point 4.

- Reduce uncertainty through improved definition of scope and schedule;
- Actively identify and manage risk to reduce exposure within limits;
- Carve out additional contingency through intensive Value Management at programme and individual project level;
- Allocate risk effectively through the commercial agreements (on the basis, amongst other things, of value for money); and
- Establish a risk management capability across the programme.

2. Contract management of risk within controlled contingency budgets.

- Manage price and design uncertainty through the procurement process;
- Set and exercise control of contingency budgets; and
- Incentivise performance within these budgets.

5 Principles

CRL's Risk Management Strategy is based on four guiding principles:

- Focus on uncertainty that matters (objective-based risk management);
- Ensure clear accountability for risk;
- Provide the right information at the right time; and
- Implement a pragmatic risk management solution.

5.1 Focus on uncertainty that matters

Risk arises from uncertainty and is relevant only if it impacts the objectives of the activity under consideration. Risks can be negative (threats) or positive (opportunities).

5.2 Ensure clear accountability for risk

- Ultimate accountability for CRL risks resides with the CRL Board. It is delegated down the CRL organisation and the supply chain to the party best placed to manage the risk.
- Managers will be made accountable for managing the risks associated with delivering their objectives and will be measured on their success.
- Those accountable for risks must be empowered and given the tools and resources required to manage them.

5.3 Provide the right information at the right time

- Risk information will be integrated into the programme data model and subject to the same level of verification as other programme controls data.
- Reports will be produced from a single set of data and will have a consistent format and vocabulary.
- All staff will recognise that information about risks and opportunities could be sensitive and access to certain aspects of risk information may have to be controlled.

5.4 Implement a pragmatic risk management solution

Crossrail will adopt an approach that:

- Will be implemented quickly then refined;
- Utilises existing processes where these have been proven to work;
- Employs risk assessment that is consistent, comprehensive and proportionate; and
- Provides analysis that assists decision-making.

6 Risk Management Strategy

The Risk Management Strategy will:

- i. Embed Risk Management in the programme;



- ii. Establish an integrated framework for the management of all categories of risk; and
- iii. Set targets for reducing risk to within acceptable (and funded) limits, develop and implement a plan to deliver reductions and monitor progress against the plan by ongoing risk assessment.

6.1 Embed Risk Management in the programme

Managing uncertainty and risk is the responsibility of everyone working on Crossrail. Considering risks and taking cost effective action to control and mitigate them will be embedded in the fundamental project management processes such as financial control, cost estimating, planning and design development.

6.2 Establish an integrated risk management framework

Crossrail's management of risk will be predominantly qualitative using tried and tested methodologies. We will:

- Report on key risks and progress with mitigations on a periodic basis;
- Establish strong accountability for managing risk and monitor the performance of accountable managers in managing their risks;
- Put in place risk reporting structures that are simple and effective;
- Establish procedures for escalating the management of risks appropriately;
- Develop and maintain Board-level engagement in the risk management process.

There will be to be a strong emphasis on the quantitative assessment of risk in order to gauge our risk management performance and prioritise risk management activity.

6.3 Develop a Risk Reduction Plan

Set targets for reducing risk to within acceptable (funded) limits, develop and implement a plan to deliver reductions and monitor progress against the plan through ongoing risk assessment.

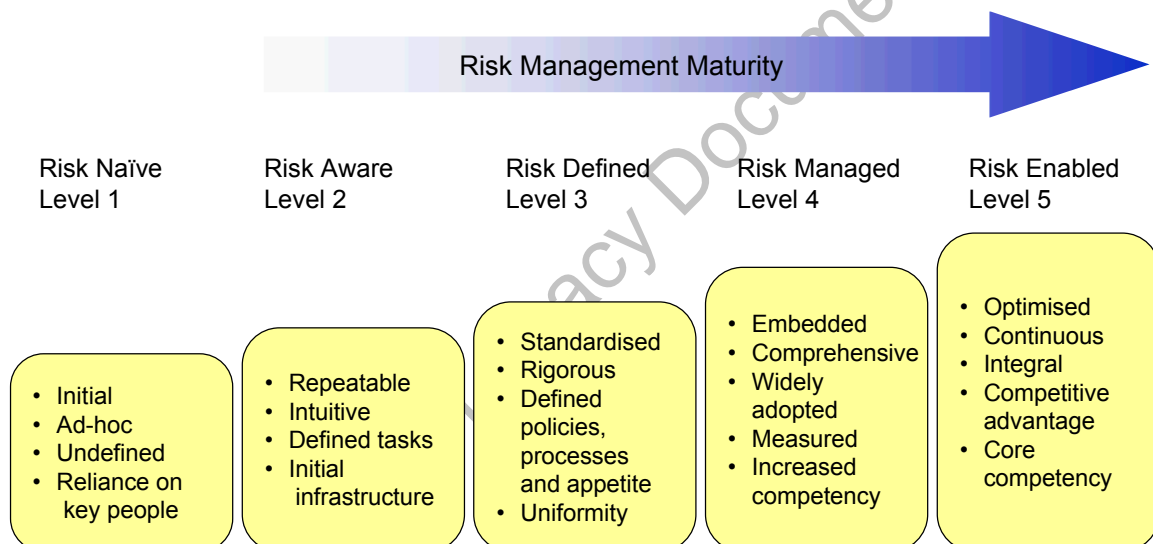
7 Implementation

7.1 Risk Management Maturity

The CIPFA¹ Risk Maturity Framework is used for auditing of risk management processes within Transport for London (TfL). It will be used as the basis for developing CRL’s Risk Management Implementation Plan. Other models, such as the Office of Government Commerce model, will be considered. The CIPFA framework defines five levels of maturity from Level 1 – “Risk Naïve” to Level 5 – “Risk Enabled”.

The implementation plan will target an increased level of maturity over time:

- It is estimated that Crossrail is currently at Level 2 “Risk Aware”;
- The target is to achieve Level 4 “Risk Managed” at Review Point 4;
- This is an ambitious target and the cultural change that is required to achieve it is significant.



Adapted from CIPFA risk maturity framework

The risk management strategy sets out three phases based on an ‘implement then refine’ approach. A detailed breakdown of the phased approach is given in Appendix 1.

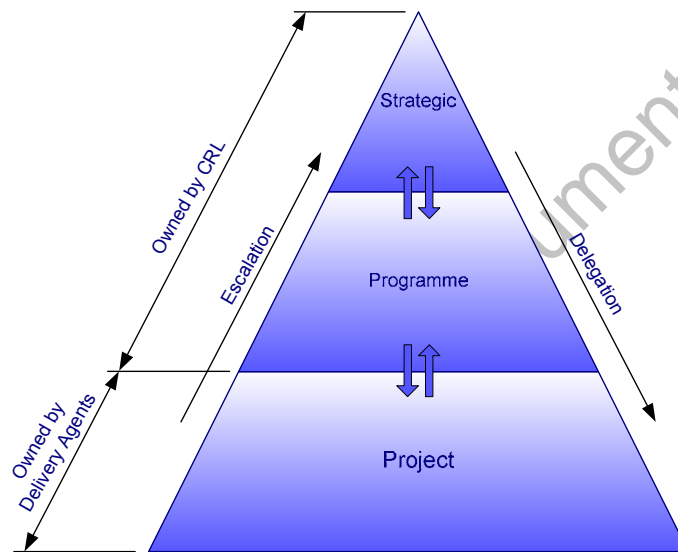
¹ Chartered Institute of Public Finance Accountants

7.2 Hierarchy of Risk

The strategy establishes a clear framework to manage risks at the correct level within the programme. The three levels are:

- Strategic;
- Programme; and
- Project.

These three levels form a hierarchy of risk (see below). Establishing a hierarchy ensures that risks are managed at the most appropriate level in the organisation. Although the principles of risk management at Crossrail will be common, the processes for managing risks in each level of the hierarchy may be different.



Crossrail hierarchy of risks

Strategic Risks are risks to CRL's strategic objectives. They are owned and managed by the CRL Executive Board members and reviewed by the CRL Board on a regular basis. Strategic Risks can be all categories and can be internal and external.

Strategic Risks – like all risks – are fundamentally uncertain in nature and may or may not impact the programme. In this way, they differ from Key Issues which are issues which have already impacted the programme and with which the programme is dealing.

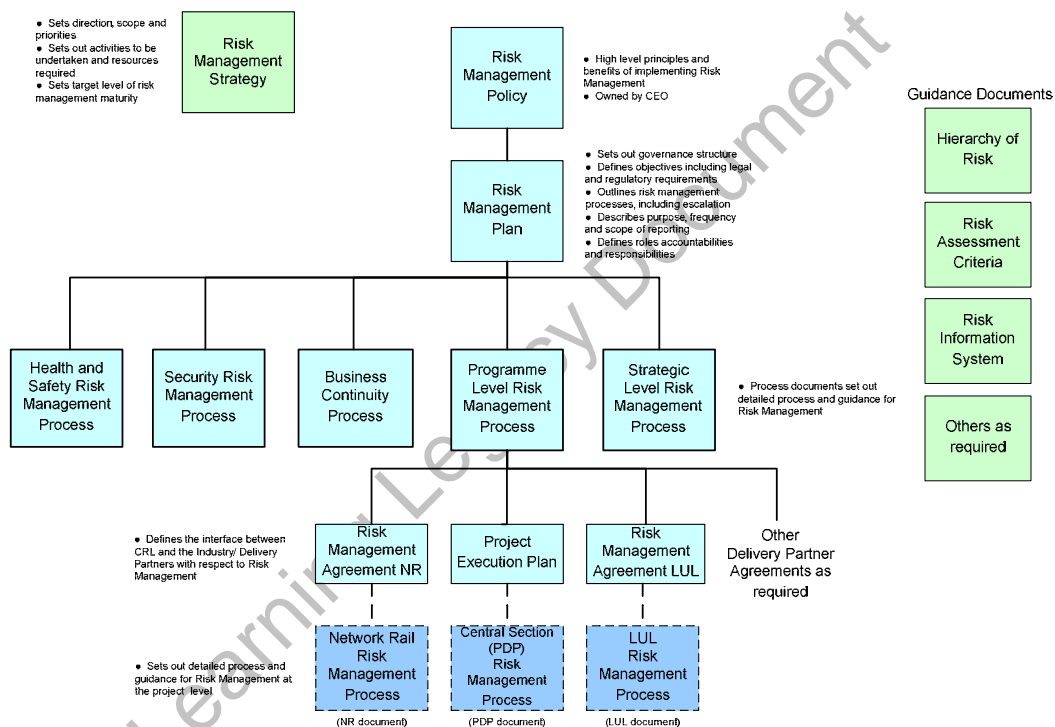
Programme Risks are risks to CRL's programme-level objectives. They are owned and managed predominantly by the CRL client organisation. They are the basis of programme-wide reporting and management of risk. Programme risks are also used in the CRL QRA.

Project Risks are risks to the objectives of projects which make up the CRL programme – safe delivery of a defined scope to specified levels of cost, time and quality. They are owned and managed predominantly by the delivery organisations e.g. Crossrail Central, Network Rail, London Underground, Canary Wharf Group, Berkeley Homes. They are the basis of project level reporting and are used for prioritising risk management activity at that level. Project risks are also used in the CRL QRA.

Risks will be able to be escalated up the levels or delegated down the levels to ensure the appropriate level of management attention.

7.3 Risk Management Framework

The Risk Management Strategy sets the direction of development in the area of Risk Management. One of the outputs of this development will be a consistent suite of documentation to describe CRL's risk management policy and process. This will include an overarching Risk Management Policy Statement and Plan, description of the Risk Management Process at the Strategic, Programme and Project levels as well as documentation on other related risk management processes including – but not limited to – Health and Safety, Security and Business Continuity.



Risk Management framework of documentation

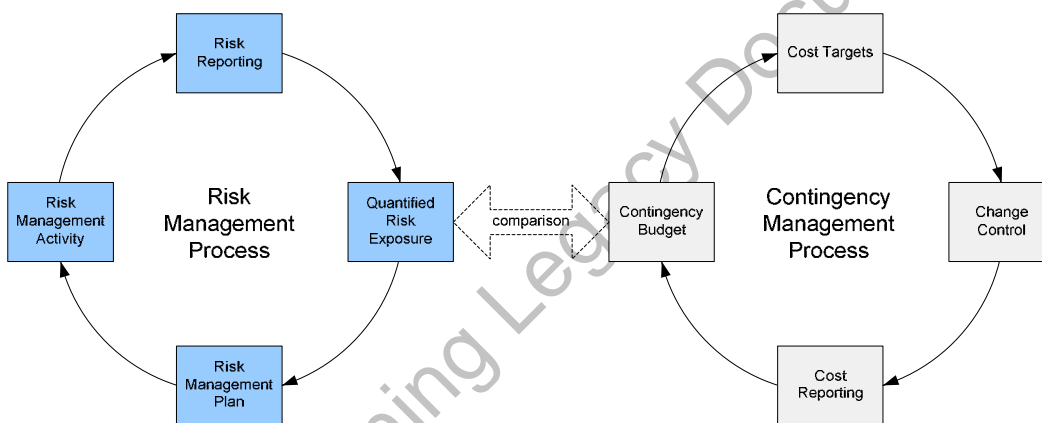
8 Approach to Contingency Management

8.1 Relationship between Risk Management and Contingency Management

CRL has finite funds in which to deliver its commitments and obligations set out in the Crossrail Act and Project Development Agreement (PDA). Funding is provided to meet two primary costs, the current estimate of the value of the Central Section Works contracts at award (known as the Point Estimate) and an allowance for costs arising from changes, variations in price and design assumptions and risks (known as Contingency).

Risk Management is concerned with managing and quantifying exposure to risk, Contingency Management controls the commitment and expenditure of Contingency.

Understanding the relationship between risk exposure and Contingency is important to the success of Crossrail. Change in risk exposure will be assessed through QRA, change in contingency will be reported through the project controls system.



CRL will routinely monitor changes in forecast risk exposure relative to the available Contingency. The Risk Reduction Plan will be continuously reviewed and improved to provide assurance to the CRL Executive and Board that the risk exposure can be contained within the available Contingency. Application of this process will be overseen by the CRL Executive - Investment and Risk committee.

8.2 Contingency Management Process

The objectives of the Contingency Management process are to:

- Apply strong governance to the allocation and expenditure of Contingency;
- Provide resistance to the allocation and expenditure of Contingency through scrutiny and challenge;
- Ensure that the allocation and expenditure of Contingency is transparent to the CRL Executive, Board and Sponsors; and
- Provide timely and sufficient access to Contingency to those managing delivery.

The process relies on the following principles:

- Sponsors retain control of the contingent funding set out in the PDA;
- CRL Board is to retain control of a final tranche of contingency prior to the breach of Intervention Point 1.
- The CRL Executive is to retain and control the majority of Contingency. This Contingency will bear excess cost arising from programme wide risk, London Underground interface risk, inflation (within the limits defined in the PDA) and excess Central Section Works cost once any dedicated contingency is spent.
- A proportion of the Contingency is to be dedicated to the Central Section Works and controlled by the Implementation Director.
- The Project Delivery Partner is to create contingency from within the point estimate through the application of value management.
- Contingency will be managed as a reserve fund and will not be spent directly. Instead, Contingency will be allocated to delivery budgets through the existing budget transfer process. (Delivery budgets are defined as budgets from which payments to third parties, suppliers and contractors are made).

8.3 Key Stakeholders

Crossrail has multiple stakeholders within a complex delivery framework. The programme is co-sponsored by the Department for Transport and Transport for London and has key interfaces with the National Rail Network and London Underground.

The relationships with and between the principal stakeholders are fundamental to the success of the programme. CRL will continue to work with stakeholders to identify risks that they hold, which might impact on the success of the programme, and establish plans for mitigating these risks through joint action.

The principal stakeholders have been identified as follows:

Logo	Stakeholder	Project Role
	HM Treasury (HMT)	Principal Funder.
	Department for Transport (DfT)	Co-Sponsor. Main interface to Central Government and HM Treasury.
	Transport for London (TfL)	Co-Sponsor. Main interface to Local Government and the Mayor of London's Office.
	Network Rail (NR)	Industry Partner. Three key roles in relation to Crossrail: <ul style="list-style-type: none"> Undertaking the On-Network Works; Undertaking works directly for CRL at the interfaces between the On-Network Section and the Central Core Area; Operator and Infrastructure Manager for both the On-Network Section and the railway systems in the Central Core Area. In addition, NR is the main interface to Train Operating Companies (TOCs) and Freight Operating Companies (FOCs).
	London Underground (LU)	Industry Partner. Two key roles in relation to Crossrail: <ul style="list-style-type: none"> Carrying out works within the existing LU curtilidge; The protection of LU's assets from CRL works in the vicinity; and The acceptance of responsibility for five stations in the Central Sections Infrastructure Manager. In addition, LU is main interface to the PPP and PFI contractors.
	Rail for London (RfL)	Industry Partner. Two key roles in relation to Crossrail: <ul style="list-style-type: none"> Infrastructure Manager and operator of Paddington, Canary Wharf, Custom House and Woolwich stations; Procurement of the Train Operating Company (TOC) to operate Crossrail services.
	Canary Wharf Group (CWG)	Canary Wharf Group is responsible for financing and constructing Canary Wharf (Crossrail) Station.
	Berkeley Homes (BH)	Berkeley Homes is responsible for financing and constructing the box and structural slabs for the station at Woolwich.
	Docklands Light Railway (DLR)	DLRL has infrastructure in proximity to Crossrail works, and will work with CRL to design and construct modifications to the DLR operational infrastructure.
	Olympic Delivery Authority (ODA) and LOCOG	The Olympic Delivery Authority is responsible for developing and building the new venues and infrastructure for the Olympic Games in 2012. LOCOG is the responsible for the preparation and staging of the games.

9 Risk Management Capability

Crossrail and its Delivery Partners will build a risk management capability to support accountable managers. Design Framework Contractors and Construction Consortia will have dedicated risk resources.

The risk management organisation for Crossrail will be developed in response to the detailed governance, roles and reporting requirements described in the Risk Management Plan. The responsibilities and accountabilities of CRL, its Delivery Partners and supply chain will also be defined in detail.

The resource plan will be based on the following principles and informed by arrangements on other major programmes:

- Head of Risk Management provides functional leadership in Risk Management across the programme;
- Integrated Programme Risk Management function supports strategic risk management, investment planning and programme delivery;
- Central Section Project Delivery Risk Management function coordinates project level risk management activity including quantitative risk assessment;
- Dedicated Risk Managers support major work packages within the central section;
- Dedicated Risk Manager supports LUL interface risk within the central section;
- Dedicated Network Rail risk management function supports the On-Network Works.

It is recognised that there is a gap between the current and proposed capabilities. This will be addressed as part of the ongoing risk management implementation plan.

10 Communication Plan

This strategy is supported by the Delivery Partners and the approach has also been discussed with the principal Industry Partners.

The strategy will be implemented by the Head of Risk Management who will be responsible for coordinating risk management development activity across the programme. This will be fully integrated with the Organisational Development Plan.

A key aspect of this strategy is to raise awareness and to change and harmonise the culture around risk management across the Crossrail programme. There are two main aspects to this.

1. Using Senior Management endorsement to:

- Develop Risk Management as a core Crossrail Value;
- Drive adoption of the Strategy across CRL and its Delivery and Industry Partners;
- Drive risk management objectives into individual staff members' objectives;
- Establish clear accountabilities for risk; and
- Encourage the timely and open reporting of risk.

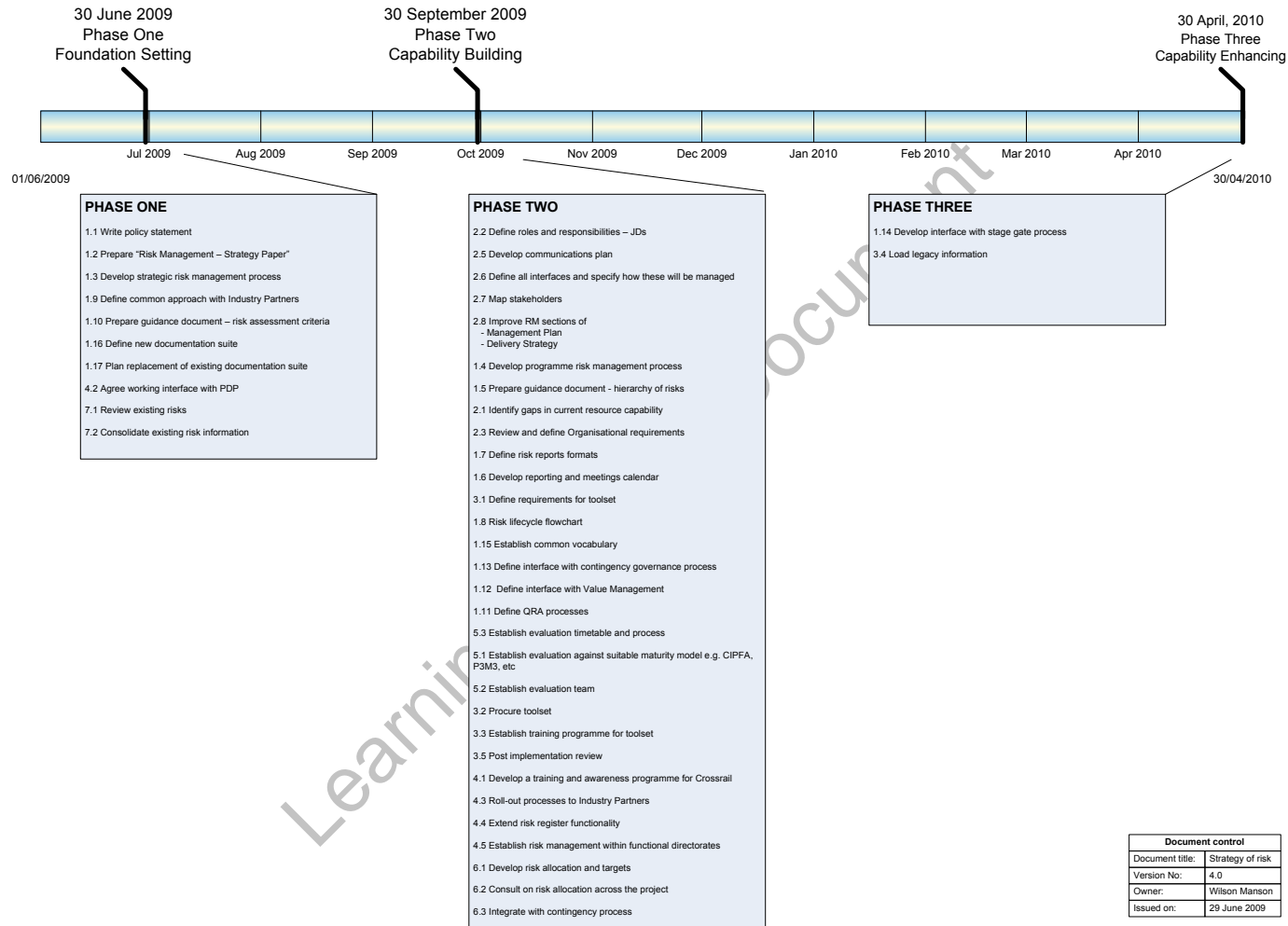


2. Communicating with the wider organisation by:

- Briefing the wider team on our risk management strategy at programme level team meetings;
- Developing Risk Management awareness training and further specialised training; and
- Promoting Risk Management through a regular drum-beat of features in Staff Communications.

Learning Legacy Document

Appendix 1 – Risk Management Development Plan



Risk Management Development Plan High Level Deliverables

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