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STRATEGIC PROJECTS

Innovation Management Procedure

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1 Introduction

1.1 Purpose

The Innovation Management Plan (Ref 1) explains the overarching principles of how the innovation programme will be managed including:

- the organisational structure of the innovation programme
- the roles and responsibilities of the Innovation Team
- the governance principles of the Innovation Management System (IMS)

This procedure provides a detailed explanation of how innovation ideas will be managed. It addresses:

- the capture and the initial assessment of innovation ideas;
- the classification of innovation ideas;
- the tracking and assignment of responsibility for actions associated with the development of innovation ideas into innovation projects;
- the reporting system; and
- the management and administration of innovation projects.

Correct use of the Innovation Management Plan (Ref 1) by the Innovation Team will ensure:

- all ideas submitted are received, logged, analysed, parked, shared, under implementation or implemented;
- innovation information is available to those who have access to the internet;
- up-to-date information on innovation ideas is available at all times to the Innovation Team and champions; and
- all innovation management correspondence and documentation can be retrieved when required.

2 Overview of the Innovation Programme

Much has been done over the past two decades to promote innovation in construction, through the adoption of lean design and production techniques, modular and pre-fabrication assemblies, integrated project teams and digital technologies. However, there is more that can be done. Raising the performance bar to the next level requires strategic efforts to promote innovation and learning from one project to the next.

In its endeavour to deliver a world-class railway, Crossrail has developed a strategy for innovation which through the approach to design, construction, maintenance and operations is intended to create a legacy for the wider industry.

Some of the UK's previous major projects (e.g. Channel Tunnel Rail Link, Heathrow Terminal 5 (T5) and the London 2012 Olympics) construction have taken important steps in 'raising the bar'. However, efforts have often been informal and lessons have not been fully captured. Previous projects focused on creating novel approaches to project delivery (e.g. BAA's T5 Agreement) rather than establishing a process to promote innovation within and beyond the life of the project. Crossrail has arguably broken new ground in UK construction by being the first organisation to develop a strategy and process for managing innovation in a major project environment.

2.1 Crossrail Innovation Forum

The Crossrail Innovation Forum (CIF) is the executive level group that provides strategic direction to the Innovation programme on the governance and funding of the innovation programme.

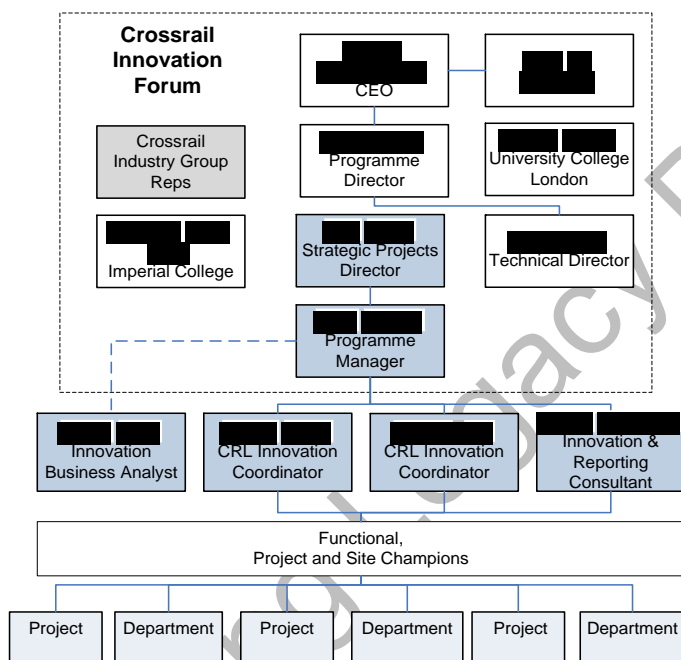
2.2 The Innovation Working Group

The Innovation Working Group is chaired by John Pelton and constitutes of senior representatives from the Supply Chain, the Innovation Programme Manager and guests from other industries and academia¹ with the objective of steering and governing day-to-day innovation activity on the innovation programme and supporting the innovation activity on Crossrail. The group is responsible for evaluating and approving innovation submissions for funding and, where appropriate, seeking approval from the Crossrail Innovation Forum (CIF). The group is also responsible for evaluating competition entries and recommending category winners to the CIF.

2.3 The Innovation Management Team

The Innovation Team (blue in Figure 1.0) is responsible for nurturing an environment in which innovation can prosper. The team is responsible for the capture, review, selection, programme management and reporting of the innovation ideas for Crossrail.

Figure 1: Innovation Team structure



2.3.1 Innovation Programme Manager

Provides strategic management of the innovation programme to ensure the objectives of the Crossrail Innovation Strategy are delivered.

2.3.2 Innovation and Reporting Consultant

Responsible for reporting the status and health of the innovation programme including finances, metrics, programme and board communication; preparing and minuting of the evaluation process; production of the innovation remits and checklists; and reporting/monitoring during the implementation of invested innovation projects; development and administration of the online Innovation Management System used to track the progression of ideas.

Contributes to the management of innovation initiatives under the direction of the Programme Manager.

¹ Principally Imperial College Business School who were business partners with Crossrail for the development of the Innovation Programme.

2.3.3 Innovation Coordinators

Responsible for facilitating collaboration between the Innovation Site and Project Champions, and helps build relationships between the champions and other parts of Crossrail. They are responsible for providing guidance to the Functional Sponsors, Project Champions and Site Champions during the discovery of an innovation idea. This includes facilitating the engagement of technical specialists to develop an idea, monitoring progress and providing regular status updates to the Innovation Programme Manager.

2.3.4 Innovation Business Analyst

Manages the Innovation Bank Account and provides the financial management of the programme and financial assessment of the benefits an innovation idea.

2.4 The Innovation Community

Supporting the Innovation programme is a community of site facing Project and Site Champions and Functional Sponsors. This innovation community will become ambassadors of the innovation programme through the identification, discovery and development of innovation ideas. Figure 2 illustrates the framework of this network and the principle roles of each group.

2.4.1 Site Champions

Located within the Contractor Project teams, the Site Champions identify and share innovative practices occurring on site. The Site Champions are responsible for securing the support with the relevant Project and Functional Champions and work with their project leadership team to select those ideas to be pursued in preparation for the next competition. They are usually the primary contact during the trialling of ideas, providing feedback on projects undertaken to the innovation community and reach back to specialists during the discovery and development of ideas.

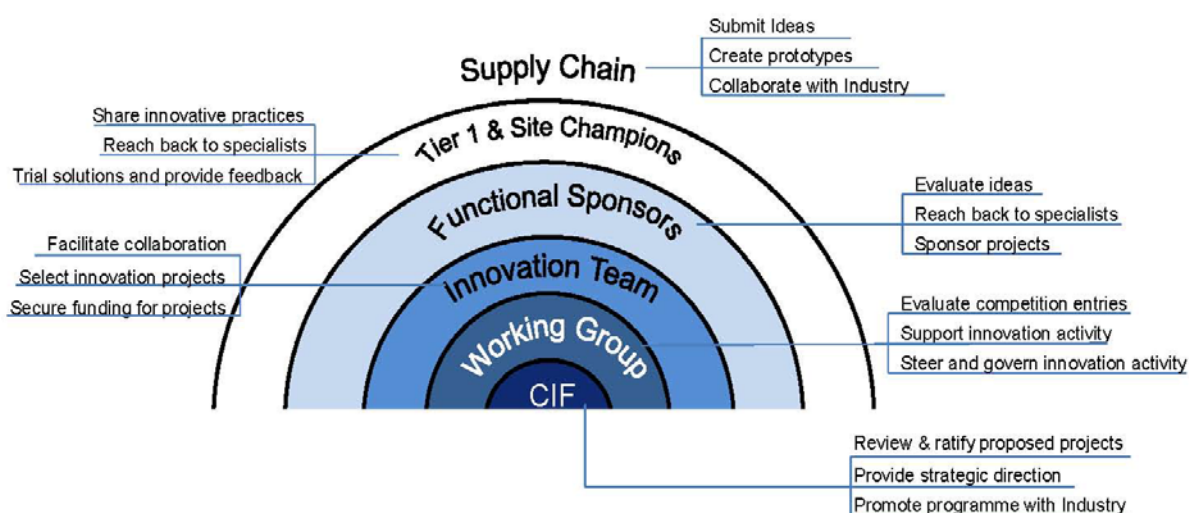
2.4.2 Project Champions

Located within the Crossrail Project team, the Project Champions identify and share innovative practices occurring on site. The Project Champions are responsible for securing the support with the relevant Functional and Site Champions and work with the Project Managers to select those ideas to be pursued in preparation for the next competition. They are usually the primary contact during the trialling of ideas, providing feedback on projects undertaken to the innovation community and reach back to specialists during the discovery and development of ideas.

2.4.3 Functional Champions

Located in a Crossrail functional directorate, the Functional Champions identify and share innovative practices occurring within their specialist area. The Functional Champions collaborate with the Project and Site Champions in the discovery and development of innovative ideas, reviewing innovative ideas and providing sponsorship as necessary.

Figure 2: Innovation Team structure



3 Innovation Management System

An Innovation Management System (IMS) has been developed to create an auditable trail for all innovation ideas submitted through the innovation portal. The IMS provides a systematic approach to the administration, management, governance and up-to-date reporting of the ideas generated by the innovation programme. It has the capability to generate reports to provide information on the composition and progress of the innovation programme.

3.1 Innovation Management System Flowchart

The flowchart in Appendix A which forms part of this procedure shows the interactions between each of the entities. It details the information flow, the responsibilities of the entities as well as the decision points at each point of the innovation management cycle.

3.2 Capture of an innovation idea

An innovation idea is submitted via the Portal which is located on the Crossrail website (www.crossrail.co.uk/innovation). The innovator is required to complete a short form that provides a summary of the idea and its application together with contact information.

3.3 Logging of an innovation idea

On completion and submission of the Portal submission form, the idea is automatically transferred into the Innovation Management System and a notification email is issued to the Innovation Coordinator and the associated Project Champion.

The information solicited from innovators includes:

- Innovator's contact details;
- Innovator's Project/Directorate;
- Innovator's site or location;
- Innovator's parent company;
- Is the idea new or one they wish to share with the Crossrail family;
- What is the challenge that has motivated or triggered the idea;
- A description of how the idea solves the problem or creates value for Crossrail;
- What the primary benefit is to Crossrail;
- An assessment of how much effort is required to deliver the idea;
- A description of the process that led them to their inspiration;
- How much time they have investing in developing the idea to date; and
- Who else assisted in developing the idea

3.4 Registering an innovation idea

On receipt of an innovation idea in the IMS, the innovation coordinator and the champion that represents the innovator receive an email notifying them of the submission. The champion and/or the Innovation Coordinator conducts an initial screen to verify whether the submission is considered innovation and whether the idea is a duplicate of an existing submission. If it does not pass this verification process, the reasons for this conclusion are provided to the Innovator.

The IMS input screens are collectively called the Innovation Form. This form is subject to change as the IMS evolves. The worksheets are configured as follows:

- **Innovation Screen** – Provides a one page summary of the idea utilising the information submitted by the innovator when submitting the idea via the Portal, including any “pinch with prides” or if it is to be implemented/adopted elsewhere on behalf of the innovator. This screen also incorporates the innovation progress and the current stage of the innovation.

- **Progress Screen** – This screen captures the evaluation information to provide an “Innovation Readiness Level” (IRL) as well as capturing the Programme Manager’s, CIWG and CIF recommendations during the evaluation stage.
- **Remit Screen** – This provides a template from which an innovation remit can be prepared after the evaluation process has been concluded. From this a business case can be raised along with the Innovation Checklist to ensure that the due diligence is completed before engaging with all the relevant parties to proceed with investing in the innovation..
- **Related Files Screen** – Provides an area for uploading specific documents relating to the idea submitted..
- **Notes Screen** – Freehand note area for logging any additional information not covered by the first four pages that are deemed important to capture in the IMS database.

The details required to be entered into the Innovation Screen when first creating a new Innovation Form that supplement the information gathered from the Portal submission include;

- Innovation Idea reference (automatically generated)
- Date of the submission
- Innovation title
- Innovator name and contact details

3.5 Preliminary investigations of an innovation idea: Discovery

The Champion builds up a detailed understanding of the idea through direct discussions with the innovator and through engaging with the wider Innovation community to create as necessary a Task Group. This knowledge is recorded in the Discovery screen. Tasks will include:

- Are the contact details correct?
- The date of the first contact with the Innovator post submission
- Meeting notes and actions from discussions with the Innovator and the appropriate Champion
- What is the current Innovation Readiness Level (IRL) of the idea?
- What would be the most appropriate IRL outcome as a result of an innovation project?
- Is the benefit clearly understood?
- Perform due diligence checklist to assist in the initial evaluation of the idea.

During the discovery phase, it is the responsibility of the Project Champion, supported by the Innovation Coordinator, to instigate the periodic review of the idea and ask the task group to consider whether:

- The benefit of the idea is clearly understood;
- That a benefit can be realised by Crossrail or its Sponsors;
- The implementation does not impose risk to the delivery programme; and
- Ultimately the idea is worthy of pursuing further.

Though periodic reviews with the appropriate Project Manager or Functional Manager the progress of an idea will be assessed and afford the opportunity to decide to:

- Return the idea to the discovery phase for further investigation by the idea task group;
- Bank the idea for future consideration;
- Promote the sharing of the idea across the programme;
- Agree to implement the idea (i.e. funding is not required);

- Apply to the Innovation Programme Manager for discovery funds (i.e. where small scale 'discovery' funding is required); or
- Submit the idea into the next Innovation Competition (i.e. where large scale funding is required).

3.6 The Innovation Evaluation

The Evaluation screen is the formal process by which the outcome of the evaluation of an idea by the Innovation Working Group is recorded.

Innovation Coordinator shall meet periodically with the Project Champions to provide guidance and support in the prioritisation and development of ideas with the aim of submitting entries into the forthcoming Innovation competition.

An innovation checklist forms part of a due diligence for potential ideas that have been identified for investment. Upon successful completion of the checklist an innovation remit is compiled between the innovator, their PM and the Innovation Coordinator.

The evaluation period is only open for a limited time every 16 weeks. Entries must be supported by a Project Manager, sponsored by the relevant Crossrail Functional Directorates and promoted by the most appropriate Crossrail Director. The competition entry will also identify if there is an opportunity to apply for external funding.

The Crossrail Innovation Working Group will review all entries and select a shortlist of recommended Innovation projects.

As appropriate, entries will receive commendations where they promote one or more of the Crossrail Values of:

Inspiration – it's in our power to change things for the better;

Respect – we treat people as we'd like to be treated;

Safety – we put safety first;

Collaboration – we're stronger together; and

Integrity – we keep our promises.

Any competition entries that fail to be shortlisted will be 'banked for future use' and feedback provided to the task group via the Champion.

3.7 Securing Funding for a Project: Investment Authority

Any competition entry that is shortlisted by the Crossrail Innovation Working Group (CIWG) but seeks funding beyond the delegate authority limits of the CIWG or is considered to be complex (i.e. it involves the collaboration of two or more directorates and imposes risk to the programme) will be escalated to the CIF for ratification prior to a formal application to Investment and Change Subcommittee (ICSC). Otherwise the CIWG will approve funding applications.

All shortlisted submissions will be evaluated to identify whether there is an opportunity for an application for external funding. The Innovation Team will be responsible for the application of external funding prior to seeking Investment Authority to authorise funding for the innovation project via Investment and Change Subcommittee (ICSC) process.

The Funding screen will formally record investment authority decisions and the budget owners of those funds.

3.8 Development / Implementation of an Innovation Project

The Innovation screen on the IMS has a designated area to provide a one page summary of the status and progress of an innovation project drawn automatically from an Excel sheet connected to the IMS database. It includes information relating to the performance of the project including:

- Progress to date;
- Critical issues;
- Financial;
- Commercial;
- Schedule; and
- Risks.

It is the responsibility of the Innovation team members to ensure the report is provided to the Innovation Reporting Officer each month in line with Crossrail's periodic reporting cycle.

3.9 Sharing an Innovation Idea

As part of the Discovery Evaluation, the decision has been made to share the idea with others, the Discovery screen is used to develop a one page summary of the innovation idea, along with visiting the sites to extract the benefits and complete understanding of the idea submitted. It is the responsibility of the Innovation Team to create this document and upload it onto the Innovation collaboration gateway.

3.10 Parking an idea for a future project

At every gate review, there is the opportunity to agree to proceed no further with the innovation idea and 'park' it for a future project. If the decision is made to 'park' an idea, the status on the form is changed to 'parked for a future project' in the IMS.

4 Innovation Programme Monitoring

A structured reporting regime has been established to monitor the performance of the Crossrail innovation programme and is to be considered an auditable process.

4.1 Innovation Programme Reporting

The progress of innovation ideas and projects will be monitored using the IMS.

The Innovation Reporting Officer is required to present a monthly Programme Flash report in accordance with the Crossrail reporting cycles. This report is to be circulated to the members of the Innovation Programme Manager and Strategic Projects Director one working day prior to the Programme Director Review meeting.

The Programme Flash report will include information relating to:

- New ideas for the period sorted by project and directorate
- Total number of ideas generated to date sorted by project and directorate
- Total number of ideas closed out for the period
- Total number of rejected ideas for the period
- Total number of investment entries for the period
- Total number of open Innovation Forms
- Total number of innovation projects against theme
- Graphical representation of funding for the innovation programme

- Graphical representation of funding expenditure for the innovation programme

The requirement for the timing, number, frequency and content of these reports can be varied under instruction from the Innovation Programme Manager.

4.2 Delegated Authority

The Innovation Programme Manager has the delegated authority from the Innovation Subcommittee to sanction the funding of the discovery of an innovation idea not exceeding £10,000 per idea up to a ceiling figure of £50,000 per financial year.

The Innovation Working Group has the delegated authority from the CIF to sanction the funding of innovation projects not exceeding £100,000 per project up to a ceiling figure of £500,000 per financial year.

All other funding applications require the ratification of the CIF and will require the formal application to Investment and Change Subcommittee (ICSC).

5 Communications

The Innovation Team has access to a dedicated Innovation Microsoft Outlook mailbox. Correspondence to and from Innovators shall be sent and received via this account.

For each innovation idea, a dedicated folder titled in accordance with the unique innovation reference number will be created. All correspondence relating to that innovation idea will be stored in that folder.

A relationship with the internal and external communications team has also been established to extend the exposure of the innovation programme across the project, including site champions and innovators involved in the programme.

6 Reference Documents

Ref:	Document Title	Document Number:
1.	Innovation Management Plan	CRL1-XRL-Z-STP-CR001-50013
2.		
3.		
4.		

7 Standard Forms / Templates

Ref:	Document Title	Document Number:
A.	None	
B.		

8 Appendix A

Innovation Management System Flowchart

