

Faraday Institution management plan

Version 1, 19th March 2018

Challenge Project Background

Challenge project priorities

Challenge priorities are defined by the Expert panel, taking input from the Faraday Challenge Advisory Board, Industry and their own view of long-term research priorities. They will cover Science, Engineering and Societal & Economic areas.

The initial target is for new energy storage to accelerate the electrification of transport. Four challenges have been identified for the first fast-start projects:

1. Countering battery degradation
2. Developing solid-state batteries with Li and Na electrodes
3. Building distinctive multi-scale modelling capabilities
4. Delivering a circular economy in batteries (recycling)

Further challenges will be identified at the start of each year, or more frequently as need and budget dictates.

The programme is driven by the achievement of milestones, which are defined at different levels:

Level 0: Refers to the Programme e.g. the Portfolio of projects.

Level 1: Refers to the top level plan of a challenge e.g. Countering battery degradation.

Level 2: Refers to the second level plan of a challenge e.g. Workpackage 1, Interfacial coatings.

Levels below this are the responsibility of the organisation carrying out the research, with monitoring and review as described in Project management.

Challenge project ideals

During the definition of the fast start projects a number of principles were developed as aims for a good proposal. Essential is that the project is driven by relevant challenging problems, but also:

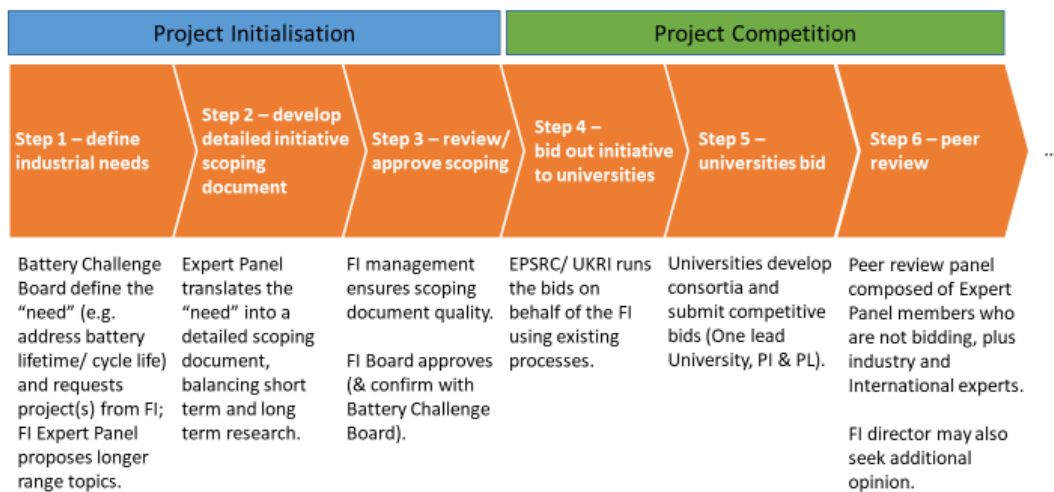
- Projects must assign a dedicated project leader (PL) who will spend 80% of their time day-to-day managing the project. Principal Investigators (PI) are expected to spend at least 20% of their time leading the project.
- Successful applicants will be required to work with the Faraday Institution HQ to define their project, the work packages, project plan and Key Performance Indicators (KPIs) before a grant is awarded.
- Projects must contribute to the growth of this field of research by recruiting staff to maximise the impact of the funding available.
- Organisations must facilitate the work of the Institution and its Director by allowing participating staff the freedom to work solely on the work of the Institution i.e. allow participating staff on occasion to work at the headquarters of the Institution and to free up staff time to focus on specific Institution projects, where relevant.
- The FI will actively manage projects, working with the PIs & PLs to plan to exploit new opportunities rapidly and stop unpromising themes early.

- Organisations must provide access to facilities to all Institution partners across the headquarters and research initiatives.
- Projects must work with others in the innovation chain, specifically across innovation and scale up activities.
- There must be a clear willingness to collaborate with other universities, forming integrated teams, including different people with diverse skills across disciplines.

Challenge project process

The process for running a challenge project is shown in Figure 1:

Active management (1/2)



Active management (2/2)

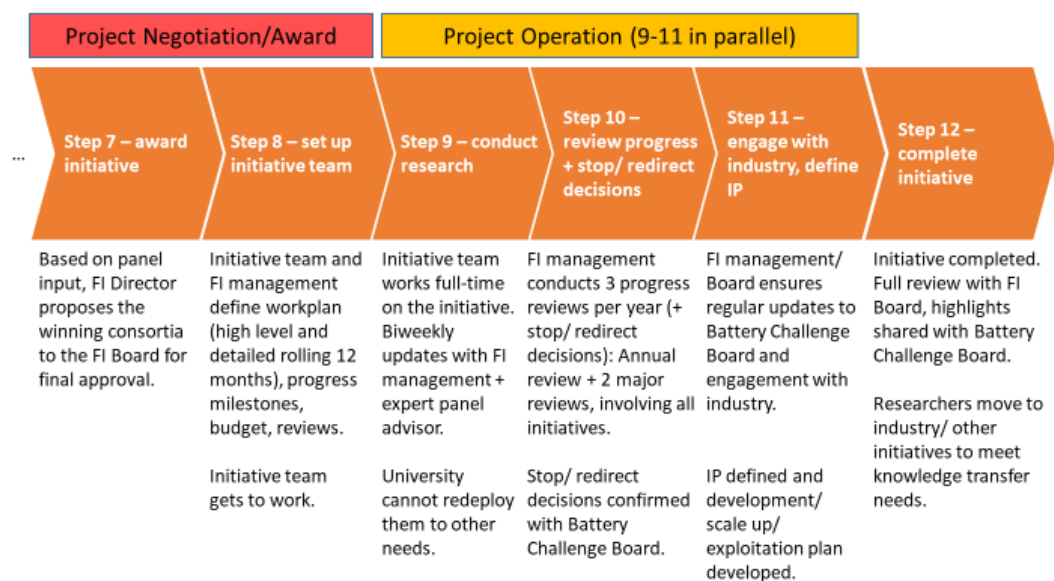


Figure 1 Schematic summary of FI challenge project process

Each challenge will have a kick-off meeting involving all the partners, FIHQ and member(s) of the Expert panel. Advice from the Expert panel is important at this stage (and may also be called on during project negotiation), to ensure the most important scientific questions are identified and addressed as a priority. During ramp-up some work-packages will get going faster than others. PIs have authority to manage funding appropriately.

4-monthly project review

It is important that the projects understand the work and achievements of the other projects and meet for exchange of ideas and results. The 4-month reviews will be the main opportunity to do this. There will be a large annual review which will hopefully take place close to the Faraday Institution Head Quarters (FIHQ) and will involve all projects, FIHQ, expert panel and industry members. It could be part of a wider innovation showcase & conference. The FI board will also meet at this time.

The review should be open to all participants of projects or members of the FI (from students up). The review should focus on outcomes from the project (positive or negative), and how the project has progressed towards solving the big challenges. The format and content of the 4-monthly reviews has yet to be further developed, but Table 1 is an outline of the thinking as at 18/03/18:

Review	Content	Who's involved
Annual	<p><u>Day1: Project reviews (confidential)</u></p> <ul style="list-style-type: none"> • Research achievements (is the project delivering transformative and internationally leading research?). • Milestones and deliverables met/not met. • Highlight any research that demonstrates exploitation opportunities. • Training achievements. • New opportunities identified (could be proposed for new funding within the project or as a new project). • High level summary for presentation to FI board including impact against KPIs. • Agree milestones, deliverables and budget for following year. <p><u>Day 2: Science & tech. showcase (public)</u> Scientific posters & presentations, Socio-economic information & market trends, Industry progress & needs.</p>	<p>FI: HQ Expert panel (plus external advisors as required).</p> <p>Project: PI & PL to present plus 1-2 project scientists. Other project staff as observers.</p> <p>FI Board: Summary review</p> <p>Observers: government.</p>
4-month	<p>As above, but with Day 2 about the projects presenting to each other and selected industry partners.</p> <p>An alternative format could be:</p> <p><u>Day 1: Plenary project highlights</u></p> <ul style="list-style-type: none"> • Morning: travel to venue • Afternoon: Plenary presentations of project research highlights • Evening dinner <p><u>Day 2: Project reviews</u></p> <ul style="list-style-type: none"> • Morning: Internal project planning • Afternoon: Project reviews with all projects 	<p>FI: HQ & Expert panel. Smaller group from each project.</p>

Table 1 Summary of review meetings

The annual review forms the third 4-month review around the time of the end of each project year.

Fortnightly update meetings

An important aspect of the active management is the continuous interaction between the project and expert panel/FIHQ. At the start of each project a member of the expert panel will be assigned to advise on science and technology issues. Their role is to ask hard questions to ensure the best science is done and the right problems are tackled, and to provide help when needed. Final decisions on what to do are the responsibility of the PI. These updates may be held as meetings at the lead (or other partner) institution (preferable and probably most useful, but at least monthly), the FIHQ, or by conference call (but no more than 1 consecutive meeting by this means). In order to aid review, it is proposed that a single sheet is prepared to cover progress/issues (with additional scientific results as appropriate e.g. looking at a single aspect of the project in more detail):

Review	Content	Who's involved
Fortnightly progress updates	<ul style="list-style-type: none"> • 1-2 hour meeting around a single page summary. • Achievements & highlights. • Progress against milestones & deliverables. • Issues & risks (technical, commercial, people, finance, etc.). • Focus of work for the next period. 	FI: Programme manager (PM), Expert panel member. Project: PI, PL

Table 2 Summary of fortnightly update meetings

Change processes

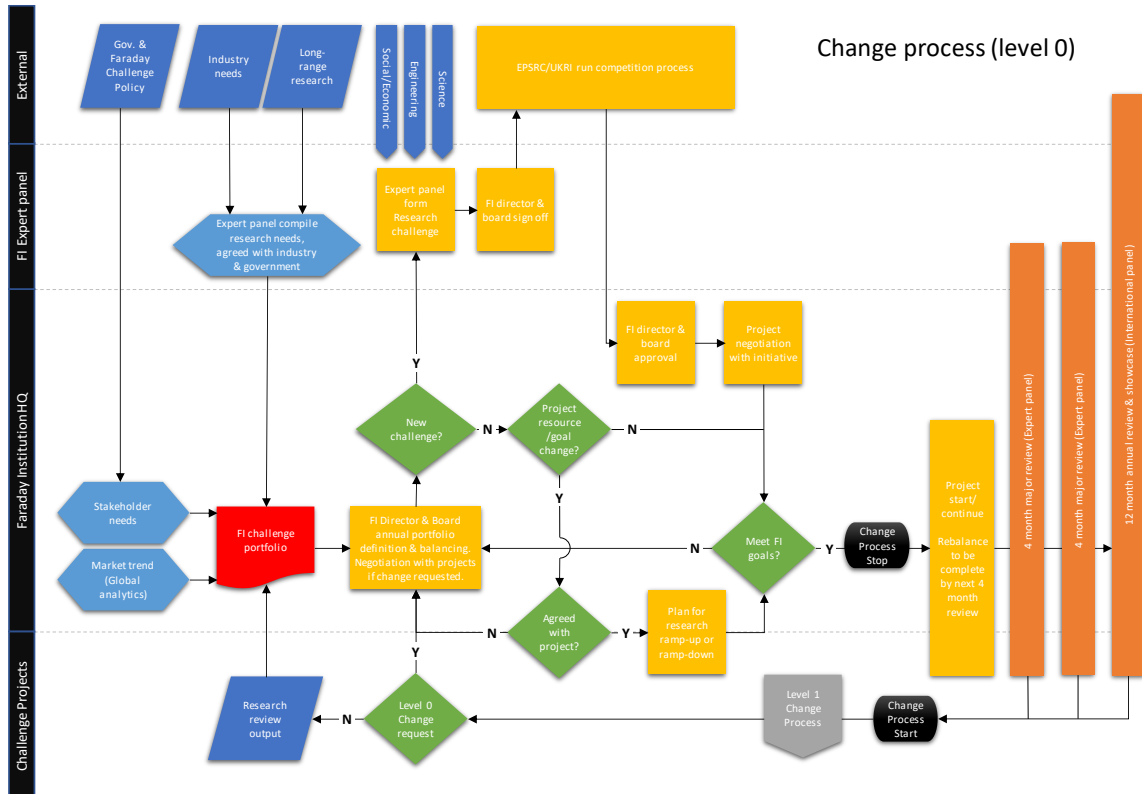
Project changes may be initiated by PL, PI, FIHQ, FI director or FI board, but it is expected that most will be originated from within the project.

Table 3 and Figure 2 summarise the authority level associated with a change at each level of the programme and how the change processes will be implemented.

Level	Examples of type of change	Authority to change	Trigger points
0: FI challenge portfolio	Changes to FI goals. New challenge initiative. De-/Emphasise challenge area. Significant (+/-) budget change. People allocation change.	FI director with FI board approval	Any of the 4-month reviews
1: Project	Reallocation of people within existing projects, between themes or work packages.	PI in consultation with EP member. PI has final say.	Biweekly updates or 4-month reviews
	Change to project milestone. Change to plan (1-3 month impact). Minor (+/-) budget change.	PI, EP member, PM. FIHQ approval.	
2: Workpackage	Sub-project/Workstream deliverable change. or Net-zero cost budget change.	PI in consultation with EP member. PI has final say.	Any
3 & lower		PI	Any

Table 3 Summary of programme changes authorisation required to change.

Portfolio (level 0) change process



Project (level 1) change process

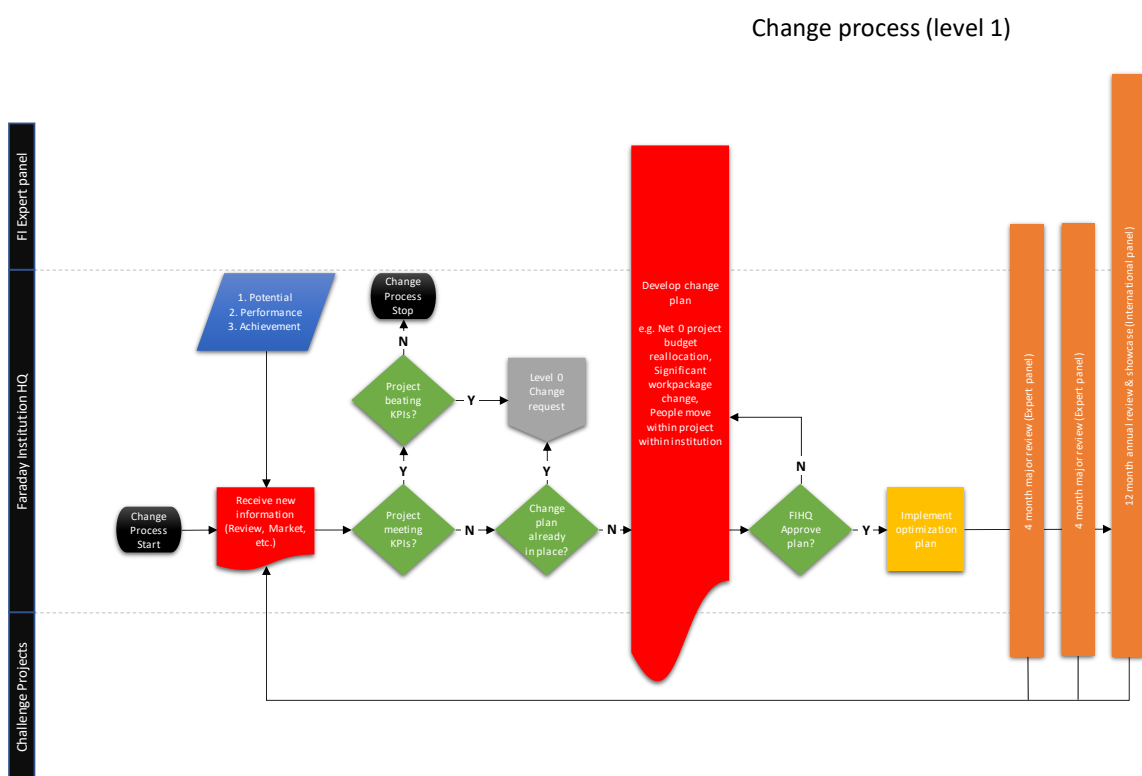


Figure 2 Schematic of change processes and level 0 and level 1.

Review of people allocation will be prioritised to minimise impact on research staff and to enhance quality of life. Therefore, an example of the sequence that could be followed if funding needs to be redistributed is reallocation within project, within institution, secondment to other institution, transfer to other institution.

Changes at level 0 will be implemented over a 4-month period i.e. between 4-month reviews.

Project completion

This will likely coincide with the annual review, which should be used as an enhanced showcase of work and achievements.

A final project report will be required, with a focus on achievements and exploitation of project results both in follow-on higher TRL projects and work with business. The format and content will be defined by stakeholders during the initial funding period for the Faraday Institution.

Financially a final project audit will be required, and it is likely that the final quarterly payment will be reserved until satisfactory completion of reporting on the project.