



Science and Technology Facilities Council

STFC Innovation Partnership Scheme (IPS) Guidance Notes

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INTRODUCTION

STFC offers a diverse portfolio of knowledge exchange schemes, designed to allow funding of projects from initial development right through to commercialisation. These schemes are designed to facilitate the transfer of STFC funded research into an industrial setting over a number of different stages of commercialisation.

- **Innovation Partnership Scheme (IPS)**
 - To transfer technology and expertise developed through STFC funding to the marketplace in partnership with industry and other academic disciplines
- **Follow-on Funding (FoF)**
 - To support proof of concept for a project following on from STFC funded research. Partner not permitted

A full breakdown on the differences between the schemes is listed below. Please note, that each scheme has a separate application process/guidance details, and applicants are asked to ensure they have selected the right scheme when submitting proposals through Je-S and read the appropriate guidance document.

	IPS	Follow-on-funding
Max duration	36 months	18 months
Max cost*	£450,000	£200,000
STFC contribution	£360,000	£160,000
Industry support	Essential	Not required
IP status	IP established	Plan to consider IP protection
Scope	Technology development/scale-up	Development of a proof-of concept

* Please note the max cost does not include any capital requested. Capital/equipment costs should be listed on top of this.

Innovation Partnership Scheme (IPS)

IPS supports the transfer of technology and expertise from STFC research to the marketplace. This includes technologies or ideas originating from the core STFC funded areas of nuclear physics, particle physics & particle astrophysics, astronomy & space science, and accelerators & computing in support of these. The scheme provides funding for a maximum of £450,000 fEC for up to 3 years.

As IPS is aimed more towards commercial/technology scale-up, one of the requirements for IPS funding is that there is a linked project partner from industry or other non-academic institution(s) (for example, government departments, charities, NHS foundations etc.). This partner should provide either financial or in-kind contributions to the project and have a vested interest in its outcomes.

ELIGIBILITY

Proposals for projects must clearly demonstrate that the science, technology, and expertise involved originated from the STFC core Science Programme or the STFC facilities and laboratories, CERN, UKSA,

ESO or ESRF. Applications will be assessed by the STFC External Innovations office staff for eligibility following submission and returned at this early stage if not fulfilling the requirements. These will be viewed as an office return, not as a panel rejection.

Lead Applicants

Lead applicants need to demonstrate that the project idea is linked to STFC research. As such, IPS is only open to current or past STFC grant-holders (core research grants, or studentships only) who meet the eligibility criteria defined in the [Research Grants Handbook](#). If an applicant has received STFC funding, but not in his/her name (for example through a post-doc position) then they are still eligible to apply for the IPS scheme, provided they are attached to an eligible RO and can show they will remain under contract for the length of the grant. If this is the case, please contact the office with a grant reference number(s) so we can confirm eligibility. Industrial applicants are not permitted to be lead applicants and should be listed as project partners.

STFC employees working at one of the national laboratories are fully eligible to apply, however must demonstrate the clear transfer of technology to commercialisation.

Lead Research Organisation

The RO must be eligible to hold UKRI grants, i.e. be an approved UK Higher Education Institution, Research Council Institute or other Public Sector Research Establishments, or an Independent Research Organisation. Full details of approved RCIs and IROs can be found on the [UKRI website](#). For further information applicants should refer to the [STFC Research Grants Handbook](#).

Non-Academic Organisations

Industrial organisations, including research/training organisations and not-for-profit operations, must apply in collaboration with a lead academic partner and demonstrate that they possess the relevant technical capabilities and capacity to meet the scheme's objectives. These collaborators are expected to be **Support Partners** – donating funds or aid in kind to a project. Furthermore, as this scheme is UK funded, the organisation must have a strong presence and benefit the UK economy. The industrial supporter may be based outside the UK but the expected value added to the UK economy, both within the project timescale, and as a result of the work completed, will play an important part in the assessment of the worth of the project. The greater the value to the UK the more highly rated the project will be at the time of assessment for funding.

It is quite common for IPS projects to have industrial partners who are spin-out or start-up companies arising from the academic group submitting the proposal. A conflict of interest may arise in this case when, for example, a named investigator may have shares in the company or when they to benefit directly from the commercialisation process.

In cases where the PI has current or former links to the project partner organisation(s) then this should be clearly declared in the letter of support, alongside details of their involvement and how it will be managed/mitigated, and how the IP will be shared. Furthermore, any contributions to the project should be clarified, so that (for example) any support is not being double counted as commitments by the academic leads.

University spinouts are eligible project partner organisations and will be treated equally to those with unrelated industrial partners, however UKRI requires 100% transparency over any relationships. If there are any questions around this, please contact the office.

COVID-19

UKRI recognises that the COVID-19 pandemic has caused major interruptions and disruptions across our communities and are committed to ensuring that individual applicants and their wider team, including partners and networks, are not penalised for any disruption to their career(s) such as breaks and delays, disruptive working patterns and conditions, the loss of on-going work, and role changes that may have been caused by the pandemic.

Reviewers and panel members will be advised to consider the unequal impacts of the impact that COVID-19 related disruption might have had on the track record and career development of those individuals included in the proposal and will be asked to consider the capability of the applicant and their wider team to deliver the research they are proposing. Where disruptions have occurred applicants can highlight this within their application, if they wish, but there is no requirement to detail the specific circumstances that caused the disruption.

UKRI acknowledges that it is a challenge for applicants to determine the future impacts of COVID-19 while the pandemic continues to evolve. Applications should be based on the information available at the point of submission and, if applicable, the known application specific impacts of COVID-19 should be accounted for. Where known impacts have occurred, these should be highlighted in the application, including the assumptions/information at the point of submission. There is no need to include contingency plans for the potential impacts of COVID-19. Requests for travel both domestically and internationally can be included in accordance to the relevant scheme guidelines, noting the above advice.

Reviewers will receive instructions to assume that changes that arise from the COVID-19 pandemic, post-submission, will be resolved and complications related to COVID-19 should not affect their scores.

Where an application is successful, any changes in circumstances that affect the proposal will be managed as a post-award issue.

TIMETABLE

All the KE schemes have two closing dates a year and are assessed by a panel of experts typically around 10-12 weeks after the closing date. Key dates can be found on the [funding finder](#) page and will be circulated to all applicants following submission. The call will close at 4 pm on the date specified

Applicants should be aware that submitting a proposal in Je-S sends the application to the Universities Research Office, not UKRI. Please allow enough time before the deadline to allow the proposal to process through the institution's internal submitter pool. Please see the call webpage for more details on UKRI/STFC deadlines including the closing date and latest time for receipt of proposals. Proposals submitted after these deadlines will not be accepted.

Applications will be assessed for eligibility and sent for peer review, after which the lead PI will be invited to respond to the comments. Please note, in accordance with UKRI guidelines, applicants have 5 days to respond to these comments unless otherwise agreed with the STFC office. Proposals will then be sent to the panel for review, and final decisions made shortly after.

EQUIPMENT

There is a limited budget for Capital/Equipment in these schemes. Applicants must contact the office to discuss their request before applying. All equipment above £10,000 will be funded at 50%. Please see the [Capital guidelines](#) in the STFC Grants Handbook for the latest terms and conditions. STFC reserves the right to not fund any equipment requests if no prior approval was granted. All requests will be issued on a first come first served basis.

APPLICATION PROCESS

All applications should be made *via* the Joint Electronic submission (Je-S) platform. To submit a proposal, applicants should navigate to the following:

1. Council: STFC
2. Document type: Standard proposal
3. Scheme: IPS
4. Call/type/mode: KE Feb 2022

As part of the application process, the following documents should be uploaded through Je-S and labelled accordingly. Any documents not listed, such as CVs, extra results, list of publications etc. will be returned to the lead applicant for removal.

- Je-S *pro forma*
- Seven-page case for support to include a one-page technical overview (Mandatory)
- One-page Gantt chart (Mandatory)
- Two-page Data management plan (Mandatory)
- Letter of Support from Technology Transfer Office (Mandatory)
- Project Partner Letter of Support from each Project Partner (Mandatory)
- Letter(s) of Support from organisations interested in the project (Recommended)
- Covering Letter (Optional. Please note, cover letters will not be seen by external reviewers/the panel)
- Other (Optional. Please note, any document uploaded under “other” will not be seen by external reviewers or the panel)

All documents should conform to the guidelines described in the [Je-S help text](#).

A project partner is mandatory for an IPS project, as the schemes are designed to support knowledge exchange. This should be included under “project partners” in the Je-S form. Resources to be provided by any project partners, whether in cash or in-kind contributions, should be clearly identified in the proposal.

STFC will pay up to 80% of the total costs of the project excluding the project partner contribution. Project partner’s contributions, either direct or in-kind, should be seen as additional to the STFC’s contribution and are not considered part of the fEC of the project. It is the responsibility of the lead applicant to ensure that the total budget requested by all members of a project (i.e. joint applications) is within the financial limits of IPS.

Information for project partners

It is expected that project partners will contribute an appropriate level of support throughout the project and have a vested interest in any outcomes. This information should be detailed in the Je-S application and through a letter of support. The primary investigator, who is applying through Je-S, must submit this information on behalf of the supporting partner.

Case for Support

The case for support should be no longer than seven pages and conform to the font and margin guidelines in the [Je-S help text](#). The case for support should be a self-contained summary of the proposed work with the necessary context given to enable panel members to make an informed

judgement on the overall quality of the proposal.

The case for support must be structured using the following headings. The guidance notes underneath have been specifically designed by UKRI to encourage applicants to develop and think about their commercialisation ideas as part of the application process. It is appreciated that not all points will be relevant to all applicants, as it will be dependent on the maturity of the technology.

Applicants are encouraged to engage with their project partner(s) and/or technology transfer office (or equivalent) when developing their case for support. If there are any questions, or additional clarifications needed, please contact the office.

It is the responsibility of the principal applicant to ensure that information is worded in such a way as to protect commercial, confidential, or sensitive data. STFC will assume that the applicant has obtained necessary permissions from any party that may be involved in the application.

Technical overview

A max one-page overview of the technology must be included as part of the case for support. This should include:

- A brief review of the underpinning research and context from the science area the opportunity arose from. Include details of previous funding where relevant
- A technical overview the innovation/technology, including any preliminary data/proof-of concept etc. which will explain the current status of the innovation

Business case

The remaining six-pages should be the business case of the application. This should be structured using the following headings. The technical overview can be referred to as part of the business-case where relevant

1. Opportunity and Market Analysis

What is the opportunity / challenge you are seeking to exploit / address, which could lead to the development and / or deployment of a new or improved product / service / technology?

You should use this section to:

- Describe the market opportunity or need that this proposal will seek to address
- Give an overview of the target market, including the sector and scale.
- Outline how your proposed solution will address the opportunity or need, considering the scalability of the proposed approach.
- Where there are existing or competing innovations / solutions, explain how your proposed approach is an improvement.
- Identify the end-user / customer base and explain how the proposed solution provides a practical solution to their needs.

2. Development Plan

How has the idea / solution been developed to date and what is the proposed approach for further development? This section should expand on the technical overview section listed above to discuss how the innovation will progress towards commercialisation.

You should use this section to:

- Detail the current understanding / maturity of the innovation / technology and how the proposed work will enable its development towards commercialisation.

You can reference back to the technical overview document if required

- Detail how key users / customers / potential investors will be engaged throughout the project, referencing any prior interactions to date.
- Include specific project milestones/deliverables, and the resourcing necessary to deliver the proposed work.
- Detail any necessary access to facilities, expertise, or consultancy essential to delivering the proposed work, including any regulatory requirements.
- Consider where risks exist (financial, commercial, technical, regulatory etc.), and outline mitigation strategies for the issues that may limit this project from delivering on its objectives

Risks and mitigation strategies can be presented as a table

- If you plan to partner with businesses or other organisations, detail their contribution (intellectual/technical/financial).
- Please upload a separate Gantt chart (or similar) (Other Attachment: maximum 1 side of A4) to illustrate the project plan

Note 1: At the time of application, or during any subsequent grant, UKRI would not anticipate any business to have exclusive rights to the assets and IP arising from the funded project.

Note 2: If the funding opportunity is successful, a collaboration agreement must be submitted before any funding can start

3. Route to Market and Intellectual Assets

How will the proposed project progress the innovation / technology towards market / application? How will you exploit and enable the deployment of the innovation into the proposed market / sector?

You should use this section to:

- Describe how the proposed work will inform and / or enable / accelerate the deployment of the product / service / technology via the most appropriate route to market.
- Outline what further support you will need following this funding (where appropriate) to deliver your product / service / technology (e.g. access to networks, further funding, private investment, skills etc), and how will go you about securing it.
- Outline how any intellectual assets, including IP, generated will be managed throughout the project to enable further development and ensure future success.
- Outline where Intellectual Property (IP) and Freedom to Operate considerations will need to be accounted for (e.g. where licenses will need to be obtained).

Whilst the specific details are not required (unless they have already been obtained), applicants are encouraged to have an understanding on what may be needed in this space

- Outline any engagement with potential end users
- Detail how key users / customers / potential investors will be engaged throughout the project, referencing any prior interactions to date.

Note: funding cannot be used to support the direct costs associated with applying for IP protection, e.g. Patent filing costs. At the time of application, or during any subsequent grant, we would not anticipate any business to have exclusive rights to the assets and IP arising from the funded project.

4. Wider benefits

Beyond the commercial opportunity, what are the potential societal, environmental, and economic benefits of the proposed approach?

You should use this section to:

- Explain why the proposed programme is appropriate for public funding
- Consider the potential of the approach to impact on high-level societal and environmental challenges e.g. gender equality, diversity, social inclusion, and climate change.

- Outline any wider economic impacts to the UK, for example on job creation, skills / capacity building.
- Describe what steps will be taken to maximise any potential benefits.

5. Ethical considerations

Are there any ethical considerations associated with your product / service / technology, including those that are beyond formal regulatory and legal frameworks?

You should use this section to:

- Outline whether there any ethical considerations relating to the project or its impacts, including any potential impacts on the environment.
- If your project will require ethical approval, for example for human or animal studies, please outline the steps already taken to put this in place.
- Consider societal acceptance of your innovation, where you think this might limit uptake outline strategies that could be employed to address this.
- Are there any implications for trusted and responsible research and innovation practises? For example, dual-use (both military and non-military) applications to your research, which could limit the commercial potential.

More information on trusted research and innovation can be found on [UKRI's webpage](#) and the [Centre for the Protection of National Infrastructure](#).

Letters of Support

Project partners

Letters or e-mails of support must be included from all named partners. In addition, you can include letters of support from other relevant parties not directly involved in the project but who support the objectives, for example, potential end users/customers.

- Can be either letters or e-mails;
 - Letters of support should be on headed paper and signed by a senior member of staff or director (the capacity in which the supporter is signing off the letter should be stated)
 - E-mails of support should be from an appropriate person and clearly named alongside their title.
- Be dated within 6 months of the submission
- Be no more than two sides of A4 in length
- Detail their interest and involvement in the project in terms of specific objectives and desired outcomes together
- Detail the projected market size, customers, and sales
- Describe how the company will commercialise the technology beyond the project
- Detail specific contributions to the project (either cash or in kind) with a justifiable monetary value. These contributions should also be stated in the Case for Support

Note: If the PI has any current or former links to the partner organisation, then they should be declared in the letter of support, alongside the details on any such involvement and how the conflict will be managed/mitigated. This is only relevant where a named investigator has any formal connection with the partner organisation and a vested/financial interest in the commercialisation outcome (e.g. current or former employee, shareholder, member of an oversight/advisory board etc.).

Technology Transfer Office

A letter of support from an applicant's Technology Transfer Office (or equivalent) must be included with each IPS application. It should relate specifically to the proposal (i.e. should not be a generic letter

of support) and explain in detail how the university sees the project being taken forward and how the university intends to support the work involved. It should also outline the current and anticipated IP position (has a patent been filed/granted) of any involved parties.

Please note, Je-S only allows a max of 3 letters of support to be uploaded, and so letters of support may be merged together into a single document if needed.

Data Management Plan

It is anticipated that all applications will produce or collect data during the course of the proposed project. The development of a data management plan as an attachment to the JeS pro forma is mandatory for all IPS applications. The plan should be no longer than two pages of A4. The plan, together with any costs associated with it, will be considered, and assessed by the normal peer review process. The data management plan should explain how the data will be managed over the lifetime of the project and, where appropriate, preserved for future re-use. Applications that do not have a data management plan will not be accepted.

Collaboration Agreements

For all IPS projects a collaboration agreement between all named partners involved in the project must be signed and a copy sent to the STFC office before the project start date. This should include details of how IP will be managed. Grants will not be allowed to start until the agreement is seen by the office.

Example model research collaboration agreements that may be used as a basis for specific agreements between partners have been developed through the [Lambert toolkit](#) for collaborative research, and further guidance can be found on the [MRC's webpages](#).

Data Protection

Grants submitted *via* Je-S are done so under their [terms and conditions](#). Please make sure you have permission from any relevant bodies before submitting any sensitive data. STFC will not be held accountable if data submitted has been done so without the relevant permissions sought.

Ethical considerations

Projects that involve holding or using sensitive information on individuals (for example facial recognition etc.) should ensure they conform to [UKRI's research integrity policy](#). Although an ethical statement will not need to be submitted alongside any proposals, all the involved researchers should have a consideration of such requirements. STFC reserves the right to suspend any grants that do not meet these requirements.

All projects and activities should conform to [UKRI Trusted Research and Innovation](#) practises. STFC reserves the right to terminate any grants if there are any concerns over the above considerations.

ASSESSMENT

Panel assessment

IPS applications are assessed by an independent panel comprised of members from industry and academia. View the current membership below. STFC reserves the right to make changes to the panel if required.

Mark Bray – BAE Systems Ltd. (Chair)
Derryck Reid – Heriot-Watt University (vice-Chair)
Karen Aplin – University of Bristol
Alexander Cherlin – Kromek Group
Richard Bates – Glasgow University

David Petyt - CERN
Eva Vilella – University of Liverpool
Konstantin Stefanov – The Open University
Norman Maloney - OHM-E Technology
Andrew Williams - European Southern Observatory
Don Pollacco – University of Warwick
Kathryn Welsby – STFC (Central Laser Facility)
Philippe Wilson – Nottingham Trent University
Des Gibson – University of West Scotland

Confidentiality and Peer Review

STFC takes all reasonable steps to ensure that the contents of applications submitted to IPS are treated as confidential. All members of the Panel sign a non-disclosure agreement and peer reviewers must comply with the Research Councils Reviewer Protocols – details can be found on [Je-S](#). Reviewers and Panel members are asked to declare conflicts of interest in relation to an application before they are asked to assess.

Each proposal will be assessed by external reviewers, one of whom must be nominated by the applicant. The applicant's nominated reviewer should not be a current or previous collaborator, a personal friend or family member, neither should they be from the applicant's or collaborator's home institution. Should it arise the reviewer is in violation of this, the nominated reviewer will not be invited to review.

Criteria for Assessment

As IPS is designed to achieve impact, applications will be assessed against the following criteria. Each criterion will be assigned a score by the panel, based on the information provided by the applicant and feedback from external reviewers. This score will be used to determine which projects receive funding. These assessment criteria are:

Technical Excellence

- The proposed project must include a programme of excellent technical development.
- The proposal should build on solid and well-thought-out technical evidence
- The proposal should be feasible from a technical standpoint and build on a strong underpinning science case

Knowledge Exchange and Commercialisation

- The extent to which the project has a clear, well defined mechanism for achieving its knowledge exchange objectives.
- The extent to which the project has a clear, well defined mechanism for achieving its commercialisation objectives.
- Capability of the project team and partner organisations on being able to deliver on the project

Social and Economic Impact from the proposed research

- The extent to which the outputs of the proposed work show direct potential for economic and societal benefit to the UK.
- The extent to which end users have been engaged and wider benefits/ethics have been considered

Added Value

- The extent to which the resources requested, relative to the anticipated outputs, represent an appropriate investment of STFC funds (value for money)

- Degree of support from Project partners both during research and after funding
- Consideration of the future of the project after IPS funding
- Strategic value within the STFC programme.

The individual nature of proposals submitted to IPS, means that the partner's contribution will vary in context and each application will be assessed on its own merit. The Assessment Panel will be seeking evidence of commitment from the project partner, through the use of direct funding and/or in-kind support, and whether this commitment is substantially justified. Applicants are advised to obtain the necessary clearances from collaborators with a commercial interest in the content of the application before submitting it.

If the proposal is from CERN, ESO, or the ESRF, then the extent to which the proposed knowledge exchange collaboration will enable CERN, ESO or ESRF technology to be exploited by UK industry or non-STFC academic sectors will be considered.

Response to reviewers

Each applicant has the opportunity to respond to the reviewer comments before the panel meeting. Applicants should be aware that we will request your response to reviewers approximately 4-6 weeks following the closing date of the call. All key dates (including an estimated date for this response) will be communicated to any eligible applicants following submission.

The PI Response should be no more than half a page of A4 per reviewer (MAX 2 pages), submitted in Arial font size 11. This should be submitted within 5 working days of receipt.

RESUBMISSION

Unsuccessful applications cannot be submitted again for at least 12 months after submission. Feedback will be given on all applications, and all decisions made by all panel members are final.

Proposals invited for resubmission may do so to the next call provided all concerns are addressed. Please note that resubmission requires an entirely new submission to Je-S and will be given a new reference number. It is NOT connected to the previous application and therefore must contain a new Je-S pro forma, Case for Support etc.

The panel will not have access to the original application during assessment. As such, the applicant should submit a cover letter in which they summarise the responses made to the panel comments, addressing the main concerns raised and how they have been addressed. The resubmission will be peer reviewed again, by the same reviewers as the original proposal where possible, who will be asked to review the changes to the proposal and assess whether the changes have satisfied the request from the Panel.

SUCCESSFUL APPLICATIONS

Please note, a collaboration agreement between all collaborators must be sent to the STFC office, including details on the ownership of any IP before funding can start. Failure to do so will mean the grant cannot become active. For further details please see the research grants handbook section [7.2](#) and [7.4](#).

Grants are awarded under the [terms and conditions](#) of UKRI. Please see [UKRI privacy note](#) for more details

RESEARCHFISH

All award holders are required to submit any outputs from their IPS project on the [Researchfish](#)

[platform](#). Award holders are required to provide information about outputs arising from their work annually during the award period, and for at least 5 years after the award has terminated.

CONTACTS

We encourage potential applicants to contact the office to discuss their proposal, and the STFC office will be able to help and provide advice on applications where appropriate. Please contact the Senior Programme Manager Wendy Carr (wendy.carr@stfc.ac.uk) or Programme Manager, Ed Mansfield (edward.mansfield@stfc.ukri.org) with any queries.

USEFUL LINKS

Below is a list of links which applicants may find useful when applying for STFC grants:

[UKRI Principles of Assessment and Decision Making](#)
[Researchfish](#),
[Equality of opportunity](#)
[Unconscious Bias](#)
[JeS Handbook](#)
[STFC Grants Handbook](#)
[UKRI Terms and Conditions](#)

ANNEX 1: CERN, ESO OR ESRF SCIENTISTS AND ENGINEERS

Any applications made by applicants working at international facilities should note that the project outputs must benefit the UK economy

IPS applicants from CERN, ESO or ESRF are welcome, and should be from a scientist or engineer performing one of the following functions:

- Research, development, or professional work including academic study and/or supervisory responsibility
- Leadership of research, development, or professional work involving a wide range of academic study and/or strategic responsibility
- Responsibilities of the highest level of scientific and/or management complexity, originality, and wide distinction

All applicants from CERN, ESO or ESRF should provide a cover letter along with their proposal stating confirmation that they meet the eligibility criteria as set down above. Furthermore, the applicant's contract of employment with must cover for at least length of the grant. The Principal Investigator need not be a UK citizen.

Completed research proposals must be approved by the appropriate Head of Department or equivalent at the host organisation. Applications from CERN should be submitted through the Director of Technology Transfer and Scientific Computing. Applications from ESO through the Head of Administration.

Please note:

- The collaborating organisation must have its research or manufacturing base in the UK.
- Funds requested should be given in pounds sterling only
- Estates and indirect costs will not be applicable to IPS grants awarded to CERN, ESO or ESRF. The estates and indirect costs addition are covered in the STFC subscription payment to CERN, ESO or ESRF, and so (if the grant is awarded), STFC will pay 80% of the full excluding estates and indirect costs.

Successful IPS awards to CERN, ESO, and ESRF will be subject to the standard terms and conditions of STFC awards, although additional grant conditions might be required on individual grants.

Please see website for link to the latest version of these notes. www.stfc.ac.uk/ips

ANNEX 2: SOFTWARE DEVELOPMENT PLAN GUIDELINES

Over the last 5-10 years, the software industry has reached the conclusion that the central problem regarding software quality and major software project failures is one of inadequate management. This annex provides some guidelines to the applicant in terms of planning (including cost and timescale estimation), management of the project, and the quality of the software deliverables. If a proposal is asking for public funding to develop a system, then a reasonable expectation of the application is to provide enough visibility to be assured that:

- The stated goal is to produce software that will be deployed and maintained as a semi-commercial product.
- There is an understood set of project objectives, sufficient to determine a reliable project cost.
- There is an understood development process with identified points for management review, using a methodology that provides some level of control and design evolution.
- There is an understanding of the project cost and its profile throughout the project.

A minimum requirement for any software development project should be:

- Identify a lifecycle model that will be used as a basis for the management of the project
- Identify the top-level requirements of the project
- Identify the deliverables of the project
- Identify the key lifecycle milestones of the project and their products (including documentation and the availability of any prototypes) and understood success criteria

The proposal need not necessarily identify all the above but should provide enough detail and justification to present a convincing case that the development process is understood. Included in the proposal, a software development plan is required for all software related projects. The detail and size of the plan should reflect its relevance in the project. Where software development is a minor part of the project, the plan need not be extensive. However, if it is critical to the success of the project and/or takes up a significant portion of the project time, then the detail should reflect this fact. The plan should be included within the six-page case for support (and not submitted as a separate document), addressing the project management requirements including the key milestones. The milestones should have nominal dates assigned to them.

In addition to the development plan, there should be evidence of a cost estimation process and allocation of sufficient resources (including staff). If there is not enough visibility to this cost estimation, then it will be assumed that it has not been done adequately and that the project is at risk of not reaching its objectives.

Risks

This should relate to the relative priorities of the project deliverables/functionality - if there are specific areas of high technical/project risk (to be identified), how are these to be managed?

If the project needs to be de-scoped to complete on schedule or within cost, what measures will be taken?

The measures that will be taken to minimise cost/risk should be stated: e.g. use of COTS equipment or commercial software, software design tools, software development tools, change management tools, configuration management tools, requirements tracking tools, defect tracking tools.

Project Governance / Oversight

The governance and oversight arrangements should be stated if the project PI is not suitably qualified to oversee software development. Otherwise it will be assumed that the PI is responsible for this section of work.

Development approach Methodology

There should be an understood development process with identified points for management review, using a methodology that provides some level of control and design evolution.

Examples of types of methodology include the "Waterfall" lifecycle model, a rapid prototyping / iterative or incremental delivery methodology.

Requirement analysis

The user needs should be clearly stated in the Case for Support and should encompass both functional requirements and non-functional requirements such as usability, resilience, performance, and supportability.

The relative priorities of the project deliverables/functionality should be stated.

Design

The appropriate design activities should be stated, which may include conceptual, architectural, preliminary, or detailed design.

Testing approach/Quality Overview

The end product should be robust, practical, and meet the needs of the users. Explain what measures will be taken to assure software quality: ideally a software development/quality plan.

Again, such a plan does not have to be a large part of the Case for Support, but it does need to address how the project will assure that it will meet its design objectives, as represented by the requirements.

The testing activities may include coding testing, unit module testing, subsystem testing, software/hardware testing, system integration testing and user acceptance testing.

Implementation/Deployment

The implementation activities, and any post-implementation and maintenance activities should be stated.

Explain what software documentation should be produced – systems and user documentation.