HFI CMM Study
Conducting Quick Assessments

Guidance on completing the Quick Assessment Forms

April 2001

1 Summary

This note describes how to fill in the web-based quick assessment forms, and presents paper copies of the quick assessment questions. It is intended that the assessment team would have this material to hand while conducting a quick assessment. There are other HFI CMM documents that support planning quick assessments and selecting processes to assess.

Document Details

Format - Internal Working Paper.
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Last edit 04 May 2001

2 Introduction

2.1.1 This note provides brief guidance on how to conduct a quick assessment. It assumes that the necessary planning activities have taken place beforehand.

2.2 Structure of this note

2.2.1 This note contains brief instructions followed by a copy of the question sets for the quick assessments of the processes selected.

3 Quick assessment forms for 'initial' processes

3.1.1 This section contains copies of the web-based forms for the processes identified in Section 4.3 above as being particularly diagnostic as regards compliance with the AMS Instructions.

3.1.2 The forms have been organised on a one-form per process basis. This is because different combinations of processes may be used for different occasions, but it is unlikely that part of a process would be assessed. The consequence is a certain amount of repetition of entering initial details. Tthis overhead may be eliminated with future developments.

3.1.3 Each form asks for a Contact Name and a Contact e-mail address. This is normally the originator of the form so that the source of the assessment is known, the analysis of the form can be returned, and queries can be made or followed up.

3.1.4 Each form also has an entry for a Sponsor Name and Sponsor e-mail address. This is an optional entry. For a self-assessment, it would not be required. Where an assessment is being conducted at the request of another party, then the details of the person requesting the assessment should be entered here. Typically, this would be an HFI focus in the DPA who had requested candidate suppliers to conduct a self-assessment. Entering the details here will allow the results to be forwarded for project use.

3.1.5 Each form asks for a project name or reference. This should be unclassified and sanitised if necessary so that the form remains unclassified when completed.

3.1.6 Each form asks for a reason for assessment - what is the reason for using the form. Typical answers to this might be 'self-assessment for process improvement', 'assessment as part of a pre-qualification exercise', 'support to team building', 'support to HF Integration Planning'.

3.1.7 The purpose of the process and its outcomes are then stated. The assessment team should discuss these (using the questions as supporting material) so that they are happy they understand the nature of the process.

3.1.8 The assessment scale is then defined, with the meanings for N, P, L, F set out. Again, the team (or individual) conducting the assessment should ensure that they understand the scale before using it.

3.1.9 The questions applicable to a quick assessment of the process are then listed. It is important that each one is answered, as otherwise the default of N will be taken as the rating.

3.1.10 There are then a couple of questions about the form. Any comments or reports of difficulties with the questions should be entered here.

3.1.11 To send off the form, use the 'Submit' button. To clear the entries and start again, use the 'Reset' button.

3.2 **Form for HS.2.1 -** Human-system issues in Business Strategy

3.2.1 Purpose: to take account of system operability in an organisation's business strategy.

- Senior management require that operability processes have a key role in product development projects;
- Goals are set;
- Resources are made available to address operability.

Operability is defined as the ability of specified users under specified contexts of use to achieve specified goals with effectiveness, productivity, safety and satisfaction with the product system under consideration. Users aren't just operators, they include maintainers and a number of other people.

3.2.2 For each of the activities below please select one of the following options:

- **N**o No - this doesn't happen
- **P**artially This happens occasionally but there is no consistency
- **L**argely Yes this usually happens
- **F**ully This is recognised as the way we do business

Activity	N	P	L	F
1. System operability is considered a competitive asset				
2. Operability processes are part of the business strategy				
3. Management relate operability to business benefits				
4. The cost benefits of a user centred approach are assessed				
5. Business management sets targets for system operability				
6. Projects are rewarded for good operability				
7. Business management follows the competitive situation in the market as regards operability				
8. Business management defines a target position in the market for system operability				
9. Senior management invests in user-centred design skills, resources, awareness in the organisation				

3.3 Questions for Form HS.2.3 - Authorisation, control and acquisition

3.3.1 Purpose : To take account of usability in acquisition and operation of product systems. Successful outcomes:

- Human effectiveness, cost and risk analysis results are fed into the system investment process
- HFI input is used to inform the acquisition process
- HFI issues are part of official sign-off for the product system and its elements
- HFI practice and capability is reviewed in order to build organisational knowledge

Activity	N	P	L	F
1.HFI requirements are included in ITTs and tenders.				
2. HFI has a review role in tender assessment.				
3.Supplier HFI capability is assessed.				
4. There are incentives for suppliers for good HFI.				
5. Financial analysis e.g investment appraisal considers whole-life cost, including HFI aspects (e.g. manpower costs).				
6. System effectiveness analysis includes Human-System issues.				
7. High-level project metrics include consideration of Human-System issues.				
8. Project industrial stakeholders are assessed for Human-System capability to identify strengths, weaknesses and opportunities.				
9. Project MOD stakeholders are assessed for Human-System capability to identify strengths, weaknesses and opportunities.				
10. Where there is a lack of Human-System capability, this is identified as a project risk.				
11. Human-System issues are addressed in the definition of Design Authority.				
12. Human-System issues are included in formal review procedures.				
13. Human-System issues have representation with formal sign-off authority.				
14. Liability for Human-System issues e.g. health and safety at work is defined.				

3.4 Questions for Form HS.2.4 - Management

3.4.1 Purpose : To ensure that the HFI processes reflect the project needs and constraints. Successful outcomes:

- Life cycle planning documents (e.g. TLMP) include Human-System work products
- Resources and staff are adequate to address HFI issues
- The life cycle plan adapts to emerging HFi issues
- There is sufficient iteration in the life cycle to achieve product system usability

Activity	N	P	L	F
1. The HFIP specifies how and when HFI activities integrate into the overall life cycle.				
2. The HFIP specifies how input from HFI processes is used in the life cycle.				
3. Plans that address HFI issues allow for iteration where necessary.				
4. The HFIP identifies the need for and costing of user involvement.				
5. The HFIP includes long-term monitoring of the system				
6. The goals for the HFIP are derived from the goals of the user organisation.				
7. Reporting structures and procedures are defined in the HFIP for people addressing HFI issues in different parts of the organisation and life cycle.				
8. Resources for effective communication between project stakeholders are allocated.				
9. HFI data requirements are defined.				
10. The interfaces between HFI methods and other project activities are defined.				
11. Outputs and success criteria for each activity are defined.				
12. Milestones related to concrete stages and achievements are defined.				
13. A multi-disciplinary team approach is specified.				
14. HFI-related activities performed as part of other jobs (e.g. software engineer) are defined.				
15. The person with authority for HFI activities is defined.				
16. Budgets related to Human-System processes are produced and reviewed.				
17. Handover of HFI issues through life (e.g. from CWG to IPT to DLO) is defined.				
18. Resources for corrective activity from in-service defect reporting are identified.				

3.5 Questions for Form HS.2.5 - Risk Mitigation and Trade-offs

3.5.1 Purpose : To mitigate project risk by using HFI data in trade-offs and risk management. Successful outcomes:

- The impact on overall system characteristics are identified arising from changes (or differences) in human performance, cost or risk.
- Potential conflicts between HFI and other risks or issues are reconciled or traded off.
- Project resources are allocated on the basis of an explicit assessment of threats to system usability.

Activity	N	P	L	F
1. Risks to usability and other HFI aspects are identified, evaluated and mitigated.				
2. HFI risks include operational risks.				
3. The management strategy emphasises the need to identify and address risk.				
4. Resouces are prioritised to match risk and emerging HFI issues.				
5. The project and system risks arising from organisational changes e.g. reduced staffing levels are identified and mitigated.				
6. The extent to which usability criteria (and other HFI requirements) will be met by the proposed design is assessed.				
7. The effect of the context of use is taken into account (including the use of other equipment).				
8. The impact of performance (or changes in performance) at a component, equipment or sub-system level is assessed at overall system level.				
9. HFI risks receive effective mitigation.				

3.6 Questions for Form HS.2.6 - User Involvement

3.6.1 Purpose : To effectively involve and consult users on each significant aspect of the system. Successful outcomes:

- The need for user involvement is identified and accepted by the project.
- Representative users are selected and made available in sufficient numbers and in a timely fashion.
- User involvement is widespread and effective.
- The resulting changes to the system are reported back to the users.

Activity	N	P	L	F
1. A full range of stakeholders and users is involved.				
2. User champions and representatives are identified and known to the design team.				
3. Management provides support for the involvement of representative users (as well as user representatives) in the design process.				
4. Human-system issues and aspects of design that require user input are identified.				
5. The barriers to effective user involvement are reviewed (e.g. availability, becoming out of date, length of involvement).				
6. The involvement of users is planned.				
7. The range and types of users to be involved is planned.				
8. The most effective methods for involving users are selected.				
9. The options for short-terms and continuing user involvement are considered.				
10. Interpretation of user input is made.				
11. User input is fed back to the users for checking.				
12. The design changes made as a consequence of user input are fed back to users.				
13. Users are able to point out where user input is not being considered.				
14. Users are able to point out where the design is diverging from user requirements.				

3.7 Questions for Form HS.2.7 - Usability Engineering Integration

3.7.1 Purpose : To facilitate information exchange and communication about system operability. Successful outcomes:

- HF data are provided in suitable format(s) for use by project stakeholders
- Potential risks arising from operability issues related to the product system and its context are identified
- The methods and techniques used in operability processes are matched to the needs of project stakeholders

Activity	N	P	L	F
1. All project stakeholders develop a common language for HS issues. For example, speaking the same language as system designers, safety engineering and specialist engineering disciplines				
2. The context of use is presented in a comprehensible form with a description of the real operational environment and its implications.				
3. A systems approach to engineering is promoted.				
4. Documents and working groups are used to control dependencies between activities that address operability issues and other project activities.				
5. Common data formats and exchange procedures are used between operability and other project activities. e.g. common checklists, review formats, risk and issue management				
6. Human aspects of the design are presented in a form suitable for trade-off studies				
7. Personnel costs or performance are presented in a form that can be traded off against equipment costs or performance.				
8. User evaluations produce easily understood feedback.				
9. Methods and techniques are matched to the way the organisation works.				
10. Tools and methods already in use within the organisation are used where possible.				
11. Engineering changes, requirements changes and configuration changes are reviewed for operability impact.				
12. There is early identification of situations requiring trade-offs between operability and other specialist engineering (e.g. safety, ILS).				
13. There is early identification of situations requiring trade-offs between operability and other mainstream engineering (e.g. time and cost).				
14. All affected parties are notified when a particular design feature is found to affect training, support, documentation or procedures				
15. Operability people work as a team with safety specialists e.g. participate in HAZOPs.				

3.8 Questions for Form HS.3.1 - Context of Use

3.8.1 Purpose : To establish, clarify and communicate the characteristics of:

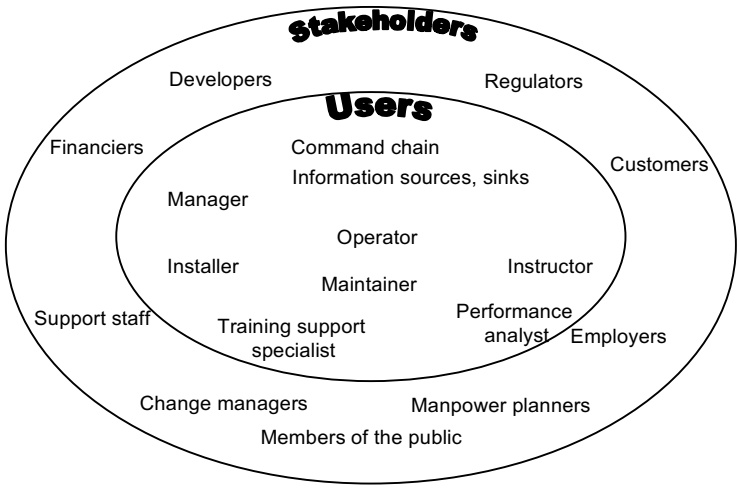
- The users and their tasks
- The technical environment
- The organisational environment
- The physical environment

in which the product system will operate.

3.8.2 As a consequence:

- The characteristics of the intended users and their tasks, including user interaction with other users and other systems, are documented.
- The real operational environment of the system is described, including the factors that affect the performance of users.
- The operability implications for the system arising from the context of use are identified.

A user is any individual interacting with the system. Examples of users and stakeholders are included in this figure.



Activity	N	P	L	F
1. The characteristics of the users are described.				
2. The tasks that users perform to achieve their goals are described.				
3.The task analysis includes consideration of parallel tasks, conflicting goals.				
4. Non-system equipment with which the users will directly interact is described.				
5. The requirements for common features with other equipments are identified.				
6. The organisational environment (including reporting structures) and the way that this shapes the role of the product system is described.				
7. A context description for both the product system and the worksystem is produced.				
8. The location, workplace equipment and ambient conditions are described.				

9. The operability implications of the physical environment are described.				
10. Each project stakeholder (for example, system developers, system owners and user organisations, designer, evaluator, owner) has access to enough information about the context of use to develop the design.				