

# The impact and benefits of HFI Process Risk Assessment

## Context: Where it fits

- Lack of **usability** is the greatest risk for military systems acquisition.
- **The Human-System Lifecycle (HSL) model** sets out what the IPT (and stakeholders) need to achieve, and the activities required to deliver these outcomes. It also sets out the related activities for the PPO to support the procurement. It is not a set of methods or a lifecycle.
- The Project Manager Guides are useful for the HFI Focus by telling him/her what to do, but they do not set out what has to be done as a whole. The HSL model and the **HFI Process Risk Assessment** resources provide the HFI focus with the means to achieve the requirements set out in the Guides.
- Detailed HFI guidance on methods and tools is useful for the specialist practitioner, and potentially (with support) very useful for the novice practitioner. However, it is not particularly useful for anyone else.

## How the HSL model helps HFI to succeed

Critical Success Factor	As opposed to...	How HSL delivers this
Support international, commercial procurement	MOD specific methods	ISO approach
Integration with system engineering	Standalone HF Isolation	Compatibility with software and system engineering standards and approaches
Support to Smart Procurement, partnering	Detailed specification, no risk transfer	Co-operative Process Improvement, Assessment of all stakeholders
Risk-driven approach, compatible with rest of project risk management	Prescription, or specialist approaches	process assessment and improvement as risk mitigation
Coverage of Manpower, Personnel, Training as well as equipment acquisition	HFE only	HSL model covers PPO, Customer 2, Customer 1
Link to project/programme evaluation, demonstration of Value For Money	"do-gooding"	Supports the development of business-level Performance Indicators

## How HFI PRA helps HFI to succeed

How HFI fails	How HFI PRA prevents this
Presentation as specialist, obscure set of knowledge	Presentation as system engineering discipline
Emphasis on testing (cf. Commercial usability labs)	Whole project scope, with emphasis on strategy
400 page text books as guides, info for non-specialist	Brevity
HF push, jobs for the boys with no obvious benefit to the project manager	Outcome-driven, role-independence
Demand for time-consuming methods with unclear benefits	Assurance of delivering outcomes
Work activities with no obvious useful outputs	Work products that are compatible with software and system engineering

## The Next Step

### Strategic implementation

- Endorsement of assessment against instructions
- Inclusion of links to HFI PRA in AMS
- Formal links to ISO 15288 within MoD.

### Technical implementation

- Training and awareness for HFI community, and for key stakeholders e.g. HFI focus, DEC.
- Continue integration with System Engineering, build on that with safety, quality.
- Start with low-cost, high-payoff situations e.g. pre-contract, early in project, projects with critical HS issues (for example, continue with FIST).

## Summary of the HFICMM project

The HFI CMM project was a three-year study carried out between April 1998 and March 2001. The work was conducted as UK MoD Corporate Research under TG5 RO2 and was performed in conjunction with DERA CHS as part of contract (Ref. CHS CU005-0000001056) to serve as the basis for Human Factors Integration Capability Maturity Assessment (abbreviated as HFIPRA for copyright reasons related to the DoD-funded Capability Maturity Model).

The HFICMM project identified, developed and tested tools for the assessment of the capability of projects or enterprises to effectively perform Human Factors Integration. A need for HFI process assurance was identified. A strategy for the implementation of an HFI process assessment framework was defined. An ISO-format process assessment model was elicited from HFI experts in MOD and industry. This was subject to international document review. Trials of two assessment tools were made. The results fed back into the model and the tools. Workshops were used in the collection and analysis of feedback. The project produced:

- a validated process model for the human-systems aspects of the systems lifecycle (the HSL model);
- a tool for fast, approximate assessment of capability;
- a model usable in full-scale process assessment;
- guidance on the competence of assessors and the performance of assessments.

The HSL process model was endorsed by MOD stakeholders and HFI domain experts. It is consistent with those from software and system engineering, is suitable for a range of assessments and improvement of HFI process. ISO format was accepted as the most appropriate since it facilitates MOD alignment with industry good practice. The rigour of process modelling clarified aspects of HFI. The project identified that changes in procurement will affect the application of the model, probably towards lightweight risk assessment and all-party process improvement.