



Human Factors Risk Management as a

G-Cloud 15

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Human Factors Risk Management as a Service for AI

About this service

BMT's **Human Factors Risk Management for AI** service ensures that AI-enabled systems deployed via cloud platforms are **safe, usable and trusted** in real-world operations. We integrate **Human Factors Integration (HFI)** into the AI lifecycle to identify and mitigate human to AI interaction risks early, ensuring that AI supports, not compromises, decision-making.

We address challenges such as **human-in-the-loop/on-the-loop oversight**, automation surprise, operator workload, situation awareness, trust calibration, and error prevention. Our work aligns with **GDS/DDaT, human-centred design principles**, and established HF assurance practices used in Defence, Security and critical-infrastructure domains.

When to use this service

Use this service when your organisation needs to:

- Introduce AI into live services and ensure **safe, acceptable and compliant** operation.
- Define **human-in-the-loop/on-the-loop** controls for cloud-hosted AI systems.
- Understand and mitigate human–AI interaction hazards (trust, workload, mode confusion, error likelihood).
- Evidence ethical and safe use of AI through **HF assurance** and **explainability/usability testing**.
- Conduct structured HF trials before go-live or assure AI developed by suppliers

What we deliver

Typical outputs are:

- **HF risk register** tailored to AI systems (hazards, causes, controls, owners)
- **HFI plan** and **HF requirements** including oversight, usability, trust and escalation controls
- **Task analysis and user journeys** identifying critical tasks, edge cases and risk points
- **Use-error analysis** (e.g., SHERPA) and **HFMEA/HRA** as appropriate
- **Trust, workload and SA assessment** using recognised HF measures
- **Usability and explainability testing** with structured protocols and evidence

- **Operational concepts and control procedures** for human–AI teaming
- **Assurance case contributions** and HF evidence for service acceptance
- **Governance design**: oversight boards, escalation routes, monitoring processes

What benefits we provide

- **Reduced operational risk** from unsafe or misunderstood AI behaviour
- **Higher user trust and acceptance** of cloud-enabled AI systems
- **Clear, auditable oversight mechanisms** for human-in-the-loop governance
- **Stronger service assurance evidence**, accelerating approvals
- **Improved service performance** through usability-driven refinements

How we deliver this service

We work closely with your delivery, AI/ML, service design and operational teams to embed HF considerations throughout development. We use **agile-compatible HF methods**, integrate into your governance cycles, and provide **knowledge transfer** to ensure sustainable HF capability beyond contract delivery.

Quality is supported through structured HF artefacts, peer review and alignment with recognised HF, AI and digital governance standards.

1. **Frame & plan** – Identify AI use-cases, operational context, stakeholders, constraints, and assurance needs.
2. **Analyse work & hazards** – Conduct task analysis, scenario mapping and hazard identification (trust, workload, error, automation risks).
3. **Design HF controls** – Define human-AI interaction controls, UI/UX improvements, safeguards, prompts and fallback procedures.
4. **Validate & trial** – Conduct usability and HF trials, evaluate trust and workload, run simulated operational incidents.
5. **Assure & accept** – Produce HF evidence for assurance cases, service acceptance and governance boards.
6. **Operate & improve** – Establish monitoring loops and human-oversight mechanisms to continuously improve performance.

Cloud alignment: Human-factor controls and assurance checkpoints are integrated into cloud-based MLOps pipelines and service governance models, ensuring HF safeguards persist through deployment and operation

Experience

BMT has delivered HF and AI-related services to Defence, Security and central-government clients, including operational trials, research programmes and safety-critical decision-support evaluations.



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