Ofcom Tech Accreditation Landscape

Final deliverable

June 2023

PUBLIC

Ofcom

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Executive Summary

- In May 2023, Ofcom commissioned PUBLIC to **help develop their knowledge and evidence base on how products and services are currently being evaluated and accredited in different sectors**. This 7-week project aimed to inform Ofcom's development of a robust and effective accreditation process. This report includes our findings from the research project.
- Our research has focused on "Accreditation Approaches" as typically referred to:
  1. An assessment of the **conformity of products/services or providers of products/services with a set of criteria**
  2. An assessment of the **competence and impartiality of an organisation/individual that performs those activities**
- PUBLIC followed a two-phase approach to the research. During Phase 1, the team gathered **evidence on 11 accreditation approaches across 5 industries. During Phase 2, the team conducted a priority scoring** exercise and then **develop in-depth case studies for Ofcom's highest priority approaches**. The research methodology centred on desk research, with the team reviewing **over 70 sources** to inform the analysis.
- Our research has highlighted **six pillars of a robust and effective accreditation process for innovative technologies for Ofcom to take into consideration when shaping it's approach to accreditation of technologies**:
  1. Where possible, prioritise **principles over prescriptive rules** to allow flexibility
  2. Ensure **adaptability to changing circumstances**
  3. Enable **uptake through a scalable process**
  4. **Reduce burden for applicants** to incentivise uptake
  5. **Identify required expertise and skills** early
  6. Establish **strong governance practices** upfront
- PUBLIC have uncovered **3 high-value areas of further research**. These are: 1) accreditation process design & roadmapping, 2) Ofcom capability mapping and 3) in-scope technology landscaping.
- As a quick-turn research project, this work has allowed the project team to **build an initial understanding of the landscape of accreditation approaches, with further work to be done to validate these findings and apply to Ofcom's context**.

Research Context

PUBLIC is supporting Ofcom in understanding how accreditation processes are developed, evaluated, and operationalised in practice

1

Ofcom has the **power under section 121 of the Online Safety Act to require certain regulated services to use accredited technology**.

Technology will be considered as 'accredited' **where it is has been accredited by Ofcom (or a person approved by Ofcom) as meeting minimum standards of accuracy** in the detection of CSEA and/or terrorism content (as the case may be).

2

In this context, Ofcom is seeking to **develop its knowledge and evidence base on how technologies are evaluated and accredited.**

This research project aims to **inform Ofcom's development of a robust and effective accreditation process.**

3

The way in which accreditation approaches are developed, evaluated and operationalised in practice **varies depending on the sector, type of accreditation, regulatory approach and stakeholders involved**. In such a diverse landscape, PUBLIC's focus has been on **identifying common practical challenges and opportunities** for the accreditation approaches in scope.

Despite a robust approach, Ofcom should bear in mind the following limitations when analysing our findings

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Short project timeframes

Due to a tight 7-week project timeline, **we have focused our review of the most relevant and valuable issues on each approach and prioritise clearly** to avoid over-scoping the research.

This has limited our capacity to explore a greater number of accreditation approaches and dive deeper into additional case studies.

Stakeholder engagement

We have relied on desk research to provide Ofcom with an overview of existing approaches to evaluation and accreditation of products and services.

Limited engagement with accreditation stakeholders have limited our ability to cover research gaps (for more detail on research gaps please refer to slide 94).

Scope of Accreditation Approaches

Based on Ofcom's steer, when conducting desk research we prioritised **diversity and breadth of approaches outside of online safety** and accreditation approaches for **both technology and non-technology** related products and services (e.g., sustainability).

Some of our findings related to those sectors and services might not be directly comparable with accreditation of technologies.

PUBLIC and Ofcom have aligned on research scope and limitations at kick-off and throughout project delivery

Methodology

Our methodology is built on pre-identified concepts and processes from PUBLIC's technology accreditation expertise

Types of Approaches in Scope

Based on parties involved

Third-Party Accreditation

- This type of accreditation is carried out **by an approved third-party organisation** assessessing technology, product or service against certain requirements **via testing, auditing and certification, etc.**
- Third-party conducting assessment is typically appointed by regulators and qualified in line with relevant standards (i.e. ISO/IEC 17065).

Mixed Approach

- Mix approach **combines multiple accreditation approaches** (e.g. verified self-assessment in combination with formal third-party accreditation, self-assessment overseen by a third party).
- This type of approach **may or may not** involve a third-party body serving as a formally approved accreditation body, an informal assessment body, or an oversight body, etc.

Based on regulatory approach

Rules

- Approach where the **primary focus is on compliance with a set of rules** (i.e technical standards) in a prescriptive way.

Principles

- Approach where the **primary focus is on adherence with underlying principles** that describe the objective of the accreditation scheme.

Types of Accreditation Subjects in Scope

Specific Service

Accreditation schemes available for **organisations that perform specific services** related to a particular industry (either voluntary or mandated by law/regulation).

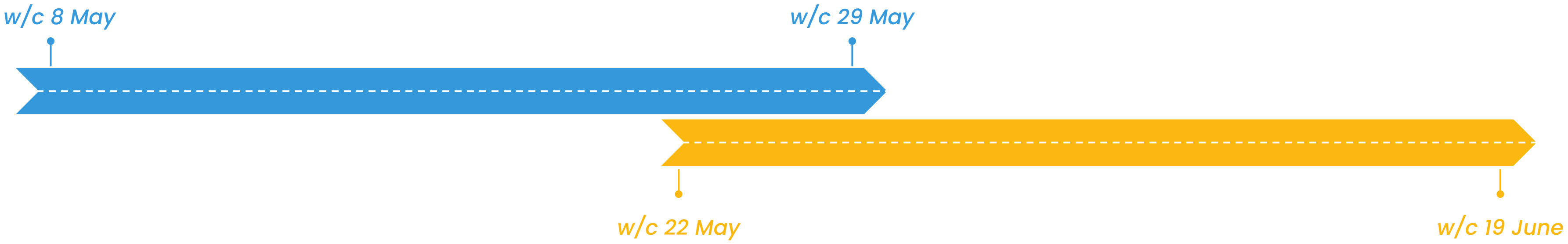
Product

A product (technology and non-technology related) is accredited or assessed against a set of criteria to ensure it meets specific criteria usually related to safety, quality, and usability.

General

Any organisation can undergo accreditation regardless of the product or service they are developing.

This project spanned 7 weeks over two phases to develop a landscape review of technology accreditation approaches



Phase 1: Landscape Mapping

Key Activities

- Desk research
- Development of longlist approaches and criteria
- Advantage and disadvantage analysis

Deliverables

- **Longlist approaches library**
- **End of Phase 1 deliverable**

Phase 2: Deep Dive

Key Activities

- Prioritisation framework
- Downselect case approaches for case studies
- Case study deep dive analysis

Deliverables

- **Prioritisation framework**
- **Case study deep dive**
- **Final report**
- **Presentation**

We reviewed more than 70 sources and built a long list of 11 accreditation approaches from 5 different sectors

Longlisted Accreditation Approaches*

- ♡ Medical Laboratory Accreditation
- ♡ Certification Body Accreditation
- 🧠 Independent Audit of AI Systems
- 🔒 Cyber Assessment Framework
- 🔒 TEMPEST and EMS Accreditation
- 🌱 B Corp Certification
- 🌱 LEED Certificate
- ✈ EASA Part 145 Accreditation
- ♡ Digital Technology Assessment Criteria
- 🧠 Singapore’s approach to AI Governance
- 🔒 Cyber Essentials/Cyber Essentials Plus

Key Considerations

- **Variety of Sectors and Approaches.** The chosen accreditation approaches combine a variety of sectors, types of approach, subjects being accredited and processes.
- **Value to Ofcom.** We pre-identified and agreed with the Ofcom team the relevant criteria we wanted to identify for each accreditation approach:
  - Type of approach
  - Subject
  - Process
  - Standards
  - Legislation
  - Assessment criteria
- **Evidence-based knowledge.** We developed the longlist of approaches depending on how much evidence and public information was available to ensure we gathered a sufficient evidence base.

KEY

Health	♡
AI	🧠
Cyber	🔒
Sustainability	🌱
Aviation	✈

Note: This research aims to build evidence base of technology accreditations for Ofcom. Given Ofcom’s existing knowledge and engagement with the ICO on age assurance, accreditation approaches to age assurance were not prioritised in this project.

Key Takeaways

Following a literature review of 70+ sources, we selected 11 accreditation schemes to analyse

Type	Sector	Scheme	Accreditation Body	Standards Body	Subject
Third-party Accreditation	♡	**Medical Laboratory Accreditation**	UKAS	ISO	Medical Laboratories
	♡	**Certification Body Accreditation**	UKAS	ISO	Certification Bodies
	🧠	**Independent Audit of AI Systems**	ForHumanity	ForHumanity	Any organisation
	🔒	**Cyber Assessment Framework**	NCSC	IEC, ISO, NCSC	CNI's, Gov Bodies
	🔒	**TEMPEST and EMS Accreditation**	NCSC, Test Lab	NCSC	ICT Infrastructure
	🌍	**B Corp Certification**	BLab Country Ch.	BLab Global	Any organisation
	🌍	**LEED Certificate**	USGBC; GBCI	USGBC	Buildings
	✈	**EASA Part 145 Accreditation**	EASA	EASA	Aviation maintenance organisations
Mixed Approach	♡	**Digital Technology Assessment Criteria**	NHS England	NHS England, ISO, ICO, NCSC	Health technologies
	🧠	**Singapore's approach to AI Governance**	PDPC, IMDA	PDPC, IMDA	AI Systems
	🔒	**Cyber Essentials/Cyber Essentials Plus**	IASME	NCSC	Any organisation

Prioritised for deep-dive

We used a prioritisation matrix based on six criteria to downselect three case studies for a deep-dive to understand the accreditation process in detail. Please see separate prioritisation matrix deliverable for more on the prioritisation.

Our three shortlisted deep dive case studies all share mixed approach characteristics using different assessment methods

Prioritised for deep-dive

Type	Sector	Scheme	Notes
Mixed Approach	♥	**Digital Technology Assessment Criteria**	**Self-assessment** is conducted of their health technology against the DTAC questionnaire. To procure such technology, a NHS local healthcare provider **will conduct an independent assessment** to ensure that the technology meets DTAC criteria.
	🧠	**Singapore's approach to AI Governance**	**Self assessment** is verified by application completion using a AI Verify automated assessment tool. **AI Verify is developed by third parties** (i.e. IMDA and PDPC) and the **assessment is conducted automatically with oversight** from IMDA and PDPC.
	🔒	**Cyber Essentials/Cyber Essentials Plus**	**CE requires self accreditation** verified by the internal board of an organisation and approved by an IASME assessor. **CE+ requires both self accreditation and third party accreditation** via technical auditing and on-site assessment conducted by a licensed third party certification body.

We have summarised key research findings and considerations for Ofcom by sector, process stage, and approach type

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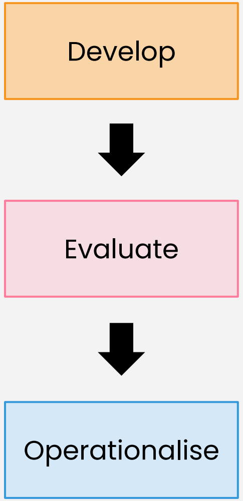
Accreditation Approach

We analysed 11 accreditation schemes across 2 types and 5 sectors.

Type	Sector	Scheme
Third-party Accreditation	♡	Medical Laboratory Accreditation
	♡	Certification Body Accreditation
	🧠	Independent Audit of AI Systems
	🔒	Cyber Assessment Framework
	🔒	TEMPEST and EMS Accreditation
	🌱	B Corp Certification
	🌱	LEED Certificate
	✈	EASA Part 145 Accreditation
Mixed Approach	♡	Digital Technology Assessment Criteria
	🧠	Singapore’s approach to AI Governance
	🔒	Cyber Essentials/Cyber Essentials Plus

Accreditation Process Stage

For each scheme, we researched how it has been developed, evaluated and operationalised.



Develop: Design and development of an accreditation process, including identifying assessment criteria and accreditation needs.

Evaluate: Evaluation process of collecting data, assessing technology performance and reviewing the results.

Operationalise: Implementation through communicating accreditation status, monitoring of ongoing compliance, and regular review and updating to maintain effectiveness and relevance.

PUBLIC's analysis has highlighted six pillars of a robust and effective accreditation process for technologies

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Prioritise principles over rules to allow flexibility

- **Where possible, prioritise principles-based approaches to** allow for **more flexibility, adaptability** to change and **streamlined governance focused on continuous improvement** of the organisation's processes.
- For this reason, principle-based accreditation is **particularly popular in emerging tech sectors** (i.e. AI, Cyber and Healthtech)

Establish strong governance practices upfront

- **Community engagement** has been best practice in multiple sectors (i.e. Cyber and Sustainability) to **enhance the feedback loop** throughout the development, implementation and maintenance of accreditation.
- Establishing **clear KPIs for monitoring & evaluation of accreditation schemes** helps track the impact of accreditation and **inform maintenance.**

Ensure adaptability to changing circumstances

- **Regular review** of the accreditation scheme, **based on assessor and applicant feedback**, helps refresh requirements to address **evolving challenges.**
- **Periodic renewal** - often on an annual basis - ensures **ongoing adoption monitoring** and provides **reassurance** to organisations and the public.

Ensuring a scalable process

- **A multi-tiered, mixed-method accreditation** allows organisations to choose the best-fit scheme based on size, revenue and organisational needs **avoiding the 'one-size-fits-all' approach.**
- **In certain circumstances, automated assessment tools** can facilitate cost-effective and scalable accreditation. (See case study 2)

Identify required expertise and resources early

- **The upfront design and development** of an accreditation scheme (incl. process design, and software development) and **technical inspections/auditing** entail most costs and expertise/resource requirements.
- **The number of involved parties varies** for different accreditation. **Early engagement** is crucial to align priority and source expertise.

Reduce friction for applicants to incentivise uptake

- **Transparent** processes and criteria, and **clear** simple **questionnaires** increase uptake.
- **Pricing and timeline** of accreditation needs to reflect **organisation's size, accredited subject, and complexity** of the assessment.
- **Tools and learning resources** sufficiently prepare applicants for accreditation and thus increase the success rate.

Source(s): *PUBLIC Analysis*

Accreditation schemes vary on each sector to best align with the market trends and regulatory needs (1/2)

	Key Findings	Key considerations for Ofcom
Health	• Historial and **tested approach** (via UKAS) to medical laboratories, imaging diagnostics and physiological services and laboratories, but **novel approaches** (i.e. DTAC) are arising for innovative **HealthTech**. • Due to the Covid-19 pandemic, UKAS had to **adapt and test new assessment approaches** to support government requirements, proving the adaptability of their approach.	• **Mature approaches are not always well suited for accreditation of novel technologies**, even within the same industry. **Accreditation of rapidly evolving technologies requires high flexibility with limited resources**. • **Identify and acquire capabilities required upfront, test pilots and engage with relevant industry stakeholders,** to ensure accreditation adapts quickly to changing circumstances.
AI	• Constantly evolving market has caused **duplicative efforts**, and **long-term “draft” principles.** Long-term review periods **delay deployment** of schemes, only to be quickly put back on review to address **changes in fast moving markets** • The **trialing of automation tools** allows for easy **scalability** and **flexibility**. Automation tools (i.e. Singapore’s) also support **independent learning of compliance.**	• Evolve with the market by **evaluating and adapting as the market evolves**. It is worth noting long timeline of accreditation design process may stagnate the momentum and cause duplicative efforts. • **Automation tools** may help with scaling and adapting quickly, but need **trialing** for accuracy and efficacy. Additionally, **a large upfront burden** is taken in setting up and building the automation tool.
Cyber	• **Principle-based approaches are widely adopted in cyber** to allow for scalability and adaptability. **Layering technical standards** embeds robustness to appropriately assess technical products and systems. • Given the typical **technical complexity** in cyber, **significant resource and highly skilled personnel** are required to appropriately deliver the schemes and ensure compliance.	• **Layering non-technical principles with technical standards** can promote comprehensive assessment for organisations. • The more technical the accreditation process is, the more technical staff and standards are needed **causing increase in time and funding** for set-up, delivery, and management.

Source(s): *PUBLIC Analysis*

Accreditation schemes vary on each sector to best align with the market trends and regulatory needs (2/2)

	Key Findings	Key considerations for Ofcom
Sustainability	• Variety of **mixed based review methods** from points system to tiered accreditation allows to **tailor the approach** to sub sector and market needs. • **Community driven approaches** (i.e. early engagement with providers, training workshops, networking events, newsletters, directories, annual conferences, etc.) encourage **lifelong adherence** to standards and **strong accreditor-applicant relationships**.	• **Tiered or points based approaches** allow for SMEs to apply for certification levels appropriate for their **business maturity,** but also poses **risk** that the lowest certification level comparatively is **inadequate**. **Transparency around metrics and the assessment process** are key to mitigate this risk, including companies themselves producing **annual impact/transparency reports.** • Fostering a **community** around the accreditation scheme will support the accreditation team to **stay up to date on trends** and applicants to **commit long term to standards/principles**. It will encourage bodies to **re-apply for certification** and **ease data collection** for evaluation and market analysis.
Aviation	• **Highly regulated** space encourages **harmonisation** across accreditation processes when the use of accreditation is intended to be adopted in several jurisdictions. • **Regional dependency** given regulation ownership and implementation relies on **highly skilled personnel and technical expertise**.	• If taking a global approach to accreditation, it is essential to implement **harmonisation processes, identify counterparts and agencies in other jurisdictions and develop maintenance schemes** to make sure any change to the process or standard is replicated across all jurisdictions. • **In-house regional expertise i**s best practice to build, manage, and adapt regional specific accreditation process.

Source(s): *PUBLIC Analysis*

Throughout each stage of the accreditation process, we found widely adopted practices that enhance its effectiveness

Accreditation Process Stages	Key Findings	Key considerations for Ofcom
Develop	• Assessment criteria are often **rooted in existing legislation, regulations and international principles and aligned with industry best practices**, which bring them together into **single, streamlined accreditation.** • **Engagement** with standards/accreditation bodies in adjacencies and technology compliance community helps **identify user needs, bring in external expertise, and ensure relevance and acceptance.**	• **Identify and consolidate** relevant standards, principles and assessment criteria to ensure **consistent enforcement** of regulatory requirements. • **Consider a feedback loop** (i.e. consultation, working group) with the ecosystem to benefit from **external expertise, best practices** and **industry feedback.**
Evaluate	• Additional **technical testing** is often needed for **a high level of assurance**, incurring **higher costs** and **a longer timeline,** due to the requirements for testing datasets, technical environment, experts/engineers and qualified assessors. • Providing **post-assessment feedback** to the applicants can **help with remediation** if failed initially, and **drive continuous improvement** in practices and compliance.	• Conduct further **research on potential technical testing methods** and **resources/expertise** required to develop appropriate testing infrastructure • Consider **multi-layered approaches including non-technical assessment** to provide flexibility and reduce burden. • **Embed remediation and post-assessment feedback** to the accreditation process.
Operationalise	• Most accreditation schemes **require periodic renewal** to ensure ongoing compliance, including **annual assessment, reporting, and re-accreditation/certification**. • **Regularly review and update** of an accreditation scheme keeps it up to date with **evolving technology development** and addresses identified shortcomings.	• **Consider the requirements of periodic renewal**. Renewal frequency and format needs to **balance the needs for ongoing adoption** in response to evolving circumstances and **the burden of re-assessment.** • **Establish a plan for regular review upfront** including baseline review and ongoing impact evaluation.

Source(s): *PUBLIC Analysis*

The type of accreditation approach influences adoption, effort, burden on parties and adaptability of the process

Accreditation Approaches	Key Findings	Key considerations for Ofcom
Third-Party	• **Third party accreditations tend to rely on rules-based approaches to accreditation.** They are more focused on compliance against a specific set of **standards (i.e ISO standards).** • There is **heavy reliance on auditing processes conducted by third-party entities** (i.e UKAS) to confirm compliance with standards. • **High level of assurance and confidence** in accreditation results due to rigorous, non-flexible processes.	• Third party accreditation approaches are more focused on compliance with a set of rules and standards rather than **improvement of management and performance**. • Utilising a **third party auditing entity with experience on accreditation schemes could facilitate implementation** • Third-party accreditation approaches **are less adaptable to dynamic markets and sectors** due to the number of parties and specific rules in place.
Mixed	• Mixed approaches are usually **more focused on qualitative improvements and frameworks rather than standards**. • Mixed approaches are applicable to **wide range of industries and products and services due to their flexibility and adaptability**. • **They remain still well suited for a third-party auditor to ensure compliance** with the process and standards set by accreditation body.	• **Mixed approaches reduce the burden/expertise/effort both for accreditation bodies and for candidates** as the assessment is shared between both parties. • Ofcom might consider introducing a mixed approach **to accreditation of technologies to facilitate flexibility, scalability and incentive compliance** • Providing entities with the opportunity to conduct self-assessments could **incentivise adoption across the supply chain and facilitates compliance in case of an independent audit**.

Source(s): *PUBLIC Analysis, Principles-based accreditation: the way forward?*

Further Insights: Longlist of Approaches Library

Third-Party Accreditation

Medical Laboratory Accreditation

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Medical Laboratory Accreditation

Approach type: Third-party accreditation

Approach Summary

An assessment carried out by UKAS accreditation to ensure **testing services in medical laboratories meet the relevant requirements related to integrity, impartiality and competence,** and the ability to demonstrate that specific testing activities performed in the laboratory are performed within the criteria set out in the specific ISO/IEC 17025 criteria.

Sector	Geography	Accreditation Body	Standards Body
♡	🇬🇧	UKAS MANAGEMENT SYSTEMS	ISO

Necessity: Voluntary

Standards: ISO/IEC 17025

Process overview

Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Set standards	Readiness Assessment Tool	On-site assessment	Recommendation	Renewal of accreditation annually
	Application	Inspection	Declaration of conformity	Full reassessment every 4 years
	Documentation review	Validation and Verification	Issue of Accreditation Certification	
	Pre-assessment			

Key Assessment Criteria

Technical/Non-Technical. On application the following information is requested:

1. Medical laboratory fields
2. Products and materials that are tested
3. Types of examination/technical fields/activities
4. Equipment used
5. Measurement principle and main SOP reference
6. Laboratory location

Source(s): *Medical Laboratory Accreditation - ISO 15189*

Both the responsibilities among and within each entity are clearly set out during the process

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	Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Standards Body	**ISO/IEC 17025 standards** are set and published.				
Accreditation Body		Reviews application and assesses service against ISO/IEC 17025 **minimum standards.**	Conducts the assessment, which includes visiting the premises. Depending on the organisation size, the process could take between **6-12 months** until accreditation.	UKAS Assessment Manager submits their recommendation to **an independent decision-maker** within UKAS.	Accreditation is confirmed on **an annual basis** through surveillance activities, **with a full reassessment every fourth year.**
Medical Laboratory		Conducts a **readiness assessment evaluation** against the standards and submits an application to UKAS.	**Provides suitable evidence** to UKAS Assessment Manager that they have addressed any observations.	Following ratification of the decision to grant accreditation, the organisation will be **notified in writing with a certificate of accreditation.**	Go through accreditation confirmation on **an annual basis** and **a full reassessment every fourth year.**

Source(s): *[Medical Laboratory Accreditation - ISO 15189]*

This approach is tailored to the nature of the activities performed by medical laboratories, requiring rigorous on-site auditing

Advantages	Disadvantages
Costs vary depending on the **size and type of organisation**, **activity** and **type of accreditation** which means organisations will pay in proportion to the size and complexity of their operations. UKAS offers **both pre-assessment and training support** for organisations who want to go through the accreditation process. This will facilitate familiarity with the process and timelines. Any changes in regulation, standards or industry practice **can be easily adopted to this approach due to the expertise and scale of UKAS**. Most changes will have to be properly communicated and aligned with UKAS.	The full accreditation process might take **between 6 to 12 months** (even more depending on the size of the organisation looking to be accredited). UKAS needs to **staff an Assessment Manager** who will own the process of accreditation and a team of people with relevant expertise conducting on-site visits. There is **limited information available about the type of assessment criteria** (technical and non-technical) that organisations will be evaluated against after submission of the application. Due to the nature of operations that medical laboratories perform (testing, calibration, measurement) **this process can only be replicated to similar activities** within other industries, which limits its scalability. **UK regulation specific and dependent** and therefore there may be contextual and legislative nuances specific to this approach.

Time/Effort ***Cost*** ***Staffing/Skills*** ***Transparency*** ***Scalability*** ***Ease of Maintenance***

Source(s): *PUBLIC Analysis*

Third-Party Accreditation

Certification Body Accreditation

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Certification Body Accreditation

Approach type: Third-party accreditation

Approach Summary

An assessment to demonstrate that **certification bodies in the health sector are technically competent to audit and certify activities** in accordance with the requirements of national and international standards and regulations. Certification bodies are independent, impartial bodies that operate one or more certification schemes to certify clinical services.

Sector	Geography	Accreditation Body	Standards Body
♡	🇬🇧	UKAS MANAGEMENT SYSTEMS	ISO

Necessity: Voluntary

Standards: ISO/IEC 17065:2012

Process overview

Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Sets standards	Readiness Assessment Tool	On-site assessment	Recommendation	Renewal of accreditation annually
	Application	Testing	Declaration of conformity	Full reassessment every 4 years
	Documentation review	Inspection	Issue of Accreditation Certification	
	Pre-assessment	Validation and verification		

Key Assessment Criteria

Technical/Non-Technical. On application the following information is requested:

1. Location and type of activities to be performed
2. Management Systems

Source(s): *Certification Body Accreditation*

Although the activity being accredited is only applicable to certification bodies, the process follows UKAS' standard approach

	Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Standards Body	**ISO/IEC 17065:2012 standards** are set and published.				
Accreditation Body		Reviews application and assesses service against ISO/IEC 17065:2012 **minimum standards** in a specific deployment context.	Conducts the assessment, which includes visiting the premises. Depending on the organisation size, the process could take between **6-12 months** until accreditation.	Assessment Manager submits their recommendation to an **independent decision-maker** within UKAS.	Accreditation is confirmed on an **annual basis** through surveillance activities, **with a full reassessment every fourth year.**
Certification Body in Health sector		Conducts a **readiness assessment** against the standards and submits an application to UKAS.	In case of observations, organisations will have **approximately 12 weeks to provide suitable evidence** to Assessment Manager that they have been addressed.	**Notified in writing with a certificate of accreditation.**	Go through accreditation confirmation on an **annual basis** and **a full reassessment every fourth year.**

Source(s): *Medical Laboratory Accreditation - ISO 15189*

Approach used to “check the checkers”: accreditation certification bodies who will assess compliance with standards

Advantages	Disadvantages
Costs vary depending on the **size and type of organisation**, **activity** and **type of accreditation** which means organisations will pay in proportion to the size and complexity of their operations.	The full accreditation process might take **between 6 to 12 months** (even more depending on the size of the organisation looking to be accredited).
This is a standard approach to the accreditation of entities that will provide certifications, meaning that the approach is giving **transparency** to organisations that the ‘checkers have been checked’.	UKAS needs to **staff an Assessment Manager** who will own the process of accreditation and a team of people with relevant expertise conducting on-site visits.
UKAS offers **both pre-assessment and training support** for organisations who want to go through the accreditation process. This will facilitate familiarity with the process and timelines.	There is **limited information available about the type of assessment criteria** (technical and non-technical) that organisations will be evaluated against after submission of the application.
Any changes in regulation, standards or industry practice **can be easily adopted to this approach due to the expertise and scale of UKAS**. Most changes will have to be properly communicated and aligned with UKAS.	**UK regulation specific and dependent** and therefore there may be contextual and legislative nuances specific to this approach.

Time/Effort ***Cost*** ***Staffing/Skills*** ***Transparency*** ***Scalability*** ***Ease of Maintenance***

Source(s): *PUBLIC Analysis*

Third-Party Accreditation

Independent Audit of AI Systems (IAAIS)

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Independent Audit of AI Systems (IAAIS)

Approach type: Third-party accreditation

Approach Summary

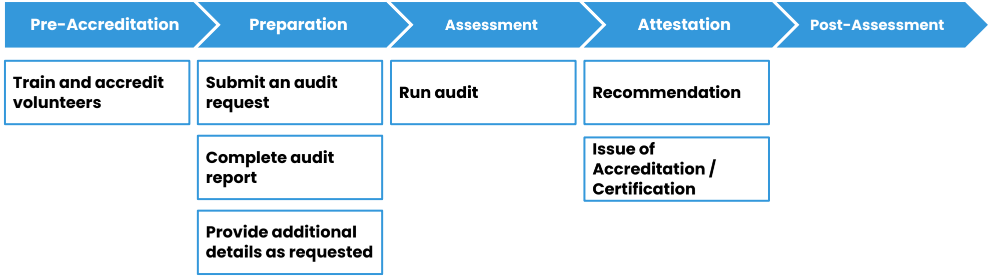
A risk-based approach for **building trustworthy AI across the following areas: Ethics, Bias, Privacy, Trust, and Cybersecurity**. The process is built and driven by **accredited volunteers registered and trained by ForHumanity**. Interested companies can submit audit reports and additionally requested data for assessment.

Sector	Geography	Accreditation Body	Standards Body
🧠	🌐	FORHUMANITY	FORHUMANITY

Necessity: Voluntary

Standards: ForHumanity's AI and automated systems 'Trust Principles'

Process overview



Pre-Accreditation: Train and accredit volunteers

Preparation: Submit an audit request; Complete audit report; Provide additional details as requested

Assessment: Run audit

Attestation: Recommendation; Issue of Accreditation / Certification

Post-Assessment

Key Assessment Criteria

Technical/Non-Technical. The 8 standards or "Trust Principles" (Predictability, Transparency, Understanding Control, Security, Fairness, Equity and Morality) are assessed against each party involved in a typical financial audit: auditor, compliant entity, society, and the five Audit Rules:

1. Binary- compliant/noncompliant
2. Measurable, unambiguous
3. Iterated and Open-sourced
4. Consensus-Driven
5. Implementable

Source(s): Independent Audit of AI Systems (ForHumanity); Auditing AI and Autonomous systems

The process relies heavily on training of volunteers by ForHumanity, developed through crowd-sourcing and collaboration

	Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Standards Body FORHUMANITY	Drafts Trust Principles and **consult with experts and trained volunteers.**				
Accreditation Body FORHUMANITY	Trains accreditate volunteers to be **official 'IAAIS Auditors'.**	**Appoints a trained accredited AI Auditor. Communicates** with applicant requirements.	**Runs audit** on AI systems and organisation.	**Provides results with recommendations** for improvement. If successful, **issues certificate** to applicant.	
Organisation		Submits an **audit request** to ForHumanity. **Completes an audit report** and provides other requested material.			

Source(s): *Independent Audit of AI Systems (ForHumanity)*; *Auditing AI and Autonomous systems*

ForHumanity's IAAIS is a risk-based approach delivered by a volunteer accreditation body, currently under review and revision

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Advantages

- **The accreditation body (I.e. ForHumanity) is a volunteer body** which doesn't add high personnel cost to the accreditation process.
- The training course is free and open to anyone to become a certified assessor/auditor and **the accreditation process is sector agnostic so the applicant does not need a specialised skill set**.
- This is a **global approach and sector agnostic**, which makes it inclusive and applicable to a wide range of AI systems and autonomous services.
- Applicants **apply online and assessment is conducted remotely/online** allowing for an global approach.
- **Volunteers can be based anywhere** and can provide regional knowledge in understanding **different markets across industry**.

Disadvantages

- It is expected to be **higher effort for the accreditation body given they will have to manage certification of volunteers**. ForHumanity is currently reviewing the standards and collecting feedback from experts which is could be a tedious process.
- There is the **risk of quality of assessment given there is a low barrier to entry** to become an auditor, and no clear requirements to renew the training once certified. There is also the risk of inconsistent or low quantity of trained assessors are available due to voluntary basis of work.
- **Not much information available** about the the full process and requirements.
- The scheme is **undergoing review**, which means certain operations and processes are not determined such as suggested renewal date and process review.

Time/Effort ***Cost*** ***Staffing/Skills*** ***Transparency*** ***Scalability*** ***Ease of Maintenance***

Source(s): *PUBLIC Analysis*

Third-Party Accreditation

Cyber Assessment Framework (CAF)

Cyber Assessment Framework (CAF)

PUBLIC

Approach type: Third-party accreditation

Approach Summary

A **regulated accreditation process** for Critical National Infrastructure (CNI) bodies, and other relevant organisations, that provides a systematic and **comprehensive approach to assessing how organisation manage cyber risks to the essential functions of their business/service**. Assessments are conducted by an NCSC-authorised accreditation body.

Sector	Geography	Accreditation Body	Standards Body
🔒	🇬🇧	National Cyber Security Centre	IEC ISO National Cyber Security Centre

Necessity: Regulated by NCSC

Standards: Standards across IEC, ISO, NCSC, and are aligned with individual principles. See the table view for full list.

Process overview

Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Assigns and accreditate assessor.	Review Materials	Validation and verification	Recommendation	
Develop IGP's	Complete all IGP's		Issue of Accreditation / Certification	
	Improve processes to meet 'achieved' status			

Key Assessment Criteria

Technical/Non-Technical. Organisations must meet all 'achieved', and in some cases 'partially achieved' outcomes as outlined in the Indicators of Good practice (IGP) Table per principle. The precise approach organisations adopt to achieve each principle will vary according to organisational circumstances.

Source(s): *NCSC CAF guidance - Principles and Guidance* ; *NCSC CAF guidance- Table view of principles and related guidance*

The process requires involvement from multiple parties and high efforts to review and comply with over 88+ standards and guides

PUBLIC

	Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Standards Body IEC ISO National Cyber Security Centre	**Sets standards and guidance.** See full list here (88+).				
Accreditation Body National Cyber Security Centre	Assigns and **accreditate authorised assessor.** Aligns standards with each principle and **develop Indicator of Good Practice (IGP) Tables.**	**Communicates** with applicant during the process.	Trained assessor **reviews IGP's and evidence.**	Provides **recommendations** for improvement or **issues certification**.	
Specific Service (CNI bodies, and other relevant organisations)		**Reviews all materias,** particularly the Indicators of Good Practice and standards per principle. **Completes all IGP's,** aiming for 'achieved' or where applicable, 'partially achieved'.	**Submit the final IGP's alongside evidence** meeting standards per principle.		

Source(s): *NCSC CAF guidance - Principles and Guidance* ; NCSC CAF guidance- Table view of principles and related guidance

CAF adopts a highly regulated approach that requires considerable resource allocation

Advantages	Disadvantages
A **specialised skill set from applicants is not required** to complete the IGP's. The information around IGP's, principles, and standards **are presented in a digestible format on the website** for independent learning. The framework **is applicable across a wide range of CNI and government bodies**, and is easily replicable across sectors.	Given the amount of standards and principles, as well as outcomes or outputs per Indicator of Good Practice (IGP), it can be expected both applicants **need high effort and time to complete all 39 self-assessments and update processes as needed.** The assessor will need to review **all evidence of each IGP** (39 total) and will require **an extended period of time** for assessment. A **specialised skill set may be required by the auditor** to understand sector specific evidence as well as meeting technical standards requirements. **UK regulation specific and dependent** and therefore there may be contextual and legislative nuances specific to this approach. Given it is regulated, **the accreditation body must manage a large volume of applications** and therefore ease of maintenance can be hindered given consistent stream of applications. **Renewal and internal review processes** were not strictly stated.

Time/Effort ***Cost*** ***Staffing/Skills*** ***Transparency*** ***Scalability*** ***Ease of Maintenance***

Source(s): *PUBLIC Analysis*

Third-Party Accreditation

TEMPEST and EMS Accreditation Scheme

TEMPEST and EMS Accreditation Scheme

Approach type: Third-party accreditation

Approach Summary

This cybersecurity scheme **manages and assesses the potential exploitation of electromagnetic vulnerabilities in ICT infrastructure**. The scheme consists of two parts: the formal scheme for all products (CFTCS) and a mobile device scheme for the First of Type assessment (CPTAS). Conformity assessments are conducted by a qualified team of engineers and/or designated test facilities.

Sector	Geography	Accreditation Body	Standards Body
		National Cyber Security Centre NCSC accredited testing facilities	National Cyber Security Centre

Necessity: Regulated by NCSC

Standards: NATO and EU TEMPEST and EMS standards

Process overview

Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Set and assign standards	Contact NCSC accredited test facilities	CFTCS Testing	*To understand the full process, organisations are asked to enquiry with the accreditation teams.*	
Assign and accredit testing facilities	Prepare product for testing	CPTAS Testing		
	Provide additional details as requested	TEMPEST Product Assurance testing		
		Vulnerability assessment, and/or on-site test		

Key Assessment Criteria

Technical. Technical Assessment criteria is dependent on each scheme:

1. CFTCS – Formal TEMPEST Certification Scheme for certifying products: CFTCS standards
2. CPTAS – Platform TEMPEST Accreditation Scheme for TEMPEST testing of mobile platforms

Additionally, products undergo TEMPEST Production Assurance Testing.

Source(s): *TEMPEST and Electromagnetic Security*

Assessment is performed in an NCSC-accredited testing environment and may include on-site testing

	Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Standards Body National Cyber Security Centre	**Set standards.**	Variably, provide TEMPEST and EMS Operational **Assurance** and **Consultancy**.	Variably, conduct a **vulnerability assessment**, **visual inspection** and/or in-depth **on-site testing** at a customer's installation.		
Accreditation Body National Cyber Security Centre **NCSC accredited testing facilities**	Assign **and accredit testing facilities** per scheme. **Assign standards** per scheme.	**Assign assessor** and **communicate requirements** to applicant.	Conduct **CFTCS or CPTAS testing**. Conduct **TEMPEST Product Assurance Testing** to ensure consistent build standard.	Issue **report** and **certification**.	
Technical Product		**Contact NCSC accredited test facility.** Prepare the product for testing. Provide additional **evidence, data, or information** as requested			Apply for further accreditation **per technological product/system.**

Source(s): *TEMPEST and Electromagnetic Security*

The TEMPEST and EMS approach is valuable for understanding and managing specific technology vulnerabilities

PUBLIC

Advantages	Disadvantages
This process **is sector agnostic and is able to be scaled across many industries**. Applicants **can apply per system and product** allowing for **flexibility in regards to personalisation of accreditation** across all systems, products, services, etc.	To conduct three different technical testings across two testing facilities, **the accreditation body will need a high effort and longer length of time** to complete the process. Technical testing at laboratories will incur a **high expense given the technical requirements** for appropriate testing: technical systems, equipment, and technical experts/engineers. **A specialist skill set is required for both the applicant and accreditor** due to highly technical standards and systems/products. The applicant is asked to **contact the testing facilities** to understand the details of the process including requirements, standards, and more. UK regulation specific and dependent and therefore **there may be contextual and legislative nuances** specific to this approach. **High level of effort in changing and adapting testing facilities** site given they are decentralised and would require an update on equipment and systems.

Time/Effort ***Cost*** ***Staffing/Skills*** ***Transparency*** ***Scalability*** ***Ease of Maintenance***

Source(s): *PUBLIC Analysis*

Third-Party Accreditation

B Corp Certification

PUBLIC

B Corp Certification

Approach type: Third-party accreditation

Approach Summary

A five-step accreditation process to assess business sustainability adhering to social and environmental standards. The country chapters act as the accreditation body owner, while B Lab Global office sets standards and verifies results. B Lab provides key resources and networking events to continue learning and engagement after certification. Businesses are required to re-apply for B Corp accreditation every 3 years.

Sector	Geography	Accreditation Body	Standards Body
🌱	🌐	B Lab United Kingdom	B Lab Global

Necessity: Voluntary

Standards: Standards set by B Corp Global Standard Advisory council and are aligned with UN SDG's

Source(s): *How to certify as a B Corp*; *A Guide to B Corp Certification*

Process overview

Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Set standards	Confirm eligibility	BIA assessment and feedback	Sign agreement	Pay Annual Fee
	Register with country chapter platform	Verification via background checks	Issue of Certification	Conduct & publish annual impact assessments
	Fill out B Impact Assessment and improve as needed	Conduct high level score screen		Re-apply for accreditation every 3 years
	Amend articles to meet legal requirements	Final assessment via call		Engage in resources & events
	Submit Disclosure Questionnaire			

Key Assessment Criteria

Non-Technical. During the Impact assessment companies are assessed on:

1. Business operations
2. Business model across 16 standards grouped in five impact areas: **Governance**, **Workers**, **Environment**, **Community**, **Customers**.

Companies' articles are reviewed to ensure appropriate legal language is adopted aligning with sustainability. To be eligible companies must be for profit operating in a competitive market for at least 12 months.

Responsibility is shared between B Corp Global and country chapters to review accreditation

	Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Standards Body B Lab Global	**Standards set** by B Corp Global **Standard Advisory council** and are aligned with **UN SDG's.**		Conduct **verification** via **background check** and conduct a **high level score screen** on pre-approved application. Hold a **final assessment via interview call.**	**Report** processed and issued. Issue of **certification.**	Update and manage **resources** and regional **events** for country B Corp organisations. Add certified company to **B Corp directory(s).**
Accreditation Body B Lab United Kingdom		Review submitted **B Impact Assessment (BIA)** and provide **feedback and tools** for score improvement as needed for resubmission.	Once BIA score is **80+ points,** conduct the **official assessment of all application materials.**		
Organisation		**Register** with Country Chapter and **confirm eligibility.** Complete the **B Impact Assessment (BIA)** and amend **articles** to meet **legal requirements.** Submit the **Disclosure Questionnaire.**	Once receive feedback, **improve the BIA score as needed.** Register amended articles with **Companies House Register.** Attend **interview call** and provide **additional materials of evidence** as needed.	Sign **Agreement** and pay first year's **fee to hold the certificate**.	Pay **annual fee to hold the certificate.** Conduct **annual impact assessments** and publicly publish report. **Re-apply for accreditation** every three years and engage in **events and comms.**

Source(s): *How to certify as a B Corp*; *A Guide to B Corp Certification*

B Corp Certification is a highly scalable approach as the reach is global and product/sector agnostic

Advantages	Disadvantages
Companies can dedicate **one part-time employee** to complete the process over the period of application. **Shared responsibility** between global and country based chapters allows to effectively process **large volumes** of applications on a **global scale**. Cost is **dependent** on the **size** and **revenue** of the **company**. **Little technical or specialist expertise** is required for both applicants and assessors. Very clear process and **user friendly interface** for applicants to foster **independent learning and application.** Many **resources and learning tools** are provided for the application before and during the application process. There are also opportunities for **continuous engagement and learning** following the accreditation. Global and country chapter for **regional specialism** and **industry knowledge**. Requires **renewal of accreditation every three years** and requires companies to **conduct annual impact reports** to track progress demonstrating continuous review of their process. **B Corp Global produces an annual impact report** indicating annual reviews of their accreditation process.	Due to more **hands-on approach,** assigned advisor from country chapter may **spend longer periods of time** assisting applicant to improve their BIA score and amend their article's language. Applicants may spend longer periods of time on BIA score, and improving processes if they do not complete minimum score to begin with. **The average timeline varies between a few months a year.** **Consistent stream and volume** of applications requires a **FTE larger team** to appropriately handle assessment and support. Only specialism or technical expertise is required for the **legal review** to assist companies in amending legal language in articles.

Time/Effort ***Cost*** ***Staffing/Skills*** ***Transparency*** ***Scalability*** ***Ease of Maintenance***

Source(s): *PUBLIC Analysis*

Third-Party Accreditation

The LEED Certificate

The LEED Certificate

Approach type: Third-party accreditation

Approach Summary

LEED **provides a framework and certification programme recognising sustainable buildings**. The conformity assessment is carried out by the Green Building Certification Incorporation (GBCI), founded specifically for independent assessment and project certification for LEED. **The certification is a tiered, points-based approach** allowing variance levels of recognition for projects achieving some to all of the standards.

Sector	Geography	Accreditation Body	Standards Body
🌱	🌍	U.S. GREEN BUILDING COUNCIL GBCI	U.S. GREEN BUILDING COUNCIL

Necessity: Voluntary

Standards: Standards are specified per building type (ie. hospitals, historical, etc.), and align with the UN SDGs

Source(s): LEED Rating System ; LEED Scorecard

Process overview

Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Sets standards, credits, and points	Register and complete sign-on forms	Review application	Recommendation	Apply for higher accreditation
	Determine best rating system		Issue of certification	Engage in learning content and events
	Select credits using the scorecard guide			Recertification
	Complete certification application			Listed on USGBC Project Directory
	Pay certification review fee			

Key Assessment Criteria

Non-Technical. To achieve LEED certification, a project earns points by adhering to prerequisites and credits that address carbon, energy, water, waste, transportation, materials, health and indoor environmental quality as outlined in the standards.

Project select specific rating systems and certification scheme based on their project categorisation. This will determine the credit point assessment.

USGBC established the Green Business Certification Inc. to be the independent body for reviewing and accrediting projects

	Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Standards Body	**Sets standards**, **credits**, and **points** per certification version and rating system.				Host **resources** and **events** to engage community, including the **annual Greenbuild International Conference.**
Accreditation Body GBCI		Provides **learning resources** and **guiding tools,** such as the **scorecard** for applicants.	**Application is reviewed and assessed** by Green Business Certification Inc (GBCI). **Verification** conducted by GBCI.	**GBCI issues certificate** to appropriate **LEED Level**: Certified, Silver, Gold or Platinum.	
Non Technology Product		Register and determine **best rating system** for project. Completes **sign-on forms. Reviews and selects the credits** to pursue. Completes **certification application** and provides evidence as needed. Pays a **certification review fee.**			Engages in **events** and **learning resources. Reapplies** for **higher certification**, and applies for **recertification** as needed.

Source(s): *LEED Rating System* ; *LEED Scorecard*

LEED deploys a unique tiered, points-based approach to accreditation putting the onus on applicants to select correct rating systems and schemes

Advantages

- Project teams **can dedicate one part-time employee to complete the process** over the period of application.
- **Project teams do not need a specialist skill set or expertise in sustainability** to complete the application. The scorecard is provided for ease of understanding the credit and review system.
- While there are many rating systems, the **tools and guidance assist applicants in choosing the best fit process** for their project and foster independent learning.
- USGBC **provides learning materials online** before, during, and after the application process.
- The scheme **is globally recognised and applies across multiple sectors and project types**.
- USGBC **produces an annual report on green building impact** demonstrating **continuous review of their process**.
- If applicable, applicants can apply for higher accreditation. **The tiered approach allow for SMEs to certify project sustainability as they mature or their industry changes.**

Disadvantages

- Dedicated FTEs are required to ensure smooth onboarding, assessment, and continuous engagement of applications. **Given the consistent and large volume of applications, the assessment is a full time responsibility for accreditation body.**
- Applicants **are required to pay to apply**, even if they do not receive an accreditation.
- A team of **sectoral-specific experts** is required for each rating system given the specificity of assessment per project type.
- Given there are versions and ratings systems or legislation specific to project type, **changes in the industry may require an update to theses rating types which would require higher levels of maintenance** (ie. change in carbon emission regulation).
- There may be a risk that given there are different levels of certification, the **lowest level** may be perceived as **inadequate or illegitimate,** comparatively to the higher levels of accreditation.

Time/Effort ***Cost*** ***Staffing/Skills*** ***Transparency*** ***Scalability*** ***Ease of Maintenance***

Source(s): *PUBLIC Analysis*

Third-Party Accreditation

EASA Part 145 Accreditation

EASA Part 145 Accreditation

Approach type: Third-party accreditation

Approach Summary

Overview: Part 145 is the European standard for the **approval of organisations that perform maintenance on aircraft and aircraft components** that are registered in EASA Member States. **The accreditation will be carried out by each jurisdiction aviation authority of EASA member States**.

Sector	Geography	Accreditation Body	Standards Body
✈	🌐		EASA European Aviation Safety Agency

Necessity: Regulated

Standards: Regulation (EU) No 1321/2014

Process overview

Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Approves standards	Readiness Assessment tool and application	On-site assessment	Recommendation	Renewal of accreditation
Incorporated processes and regulation	Documentation review	Testing	Declaration of conformity	Suspension / Revocation

Key Assessment Criteria

Technical/Non-Technical.

1. **Facilities:** Must have facilities commensurate with the scope of work for which it is approved to provide.
2. **Maintenance Data**: Generic Maintenance data for each aircraft type within the requested or approved scope must be available at all times.
3. **Tooling and equipment**: Organisations must have all tooling which is required to complete the maintenance tasks within their scope of work permanently available at their facilities.
4. **Manpower resources**: The organisation shall have sufficient staff to plan, perform, supervise, inspect and quality monitor the activities which the organisation is approved to perform.
5. **The Maintenance Organisation Exposition (MOE):** The MOE is integral to an organisation's ability to demonstrate its capability and compliance with Part 145.

Source(s): *Part-145 | EASA*

The process requires local aviation authorities to perform the accreditation following EASA standards

PUBLIC

	Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Standards Body	**Approves standards** for accreditation of organisations providing maintenance.				
Accreditation Body	Incorporated **processes and regulation** from EASA regulation into **national legislation.**		Performs an **on-site audit** of the organisation and **reviews application.**	**Local aviation authority** submits their **recommendations** and **grant authorisation.**	
Organisation providing maintenance		Submits an **application form** which includes **documentation** and **information** set by specific regulation. **Pays** relevant fee for accreditation.		**Notified of authorisation** approval or rejection.	

Source(s): *Part-145 | EASA*

EASA Part 145 authorises experts to certify aircraft maintenance and harmonises standardisation efforts across regulation

Advantages	Disadvantages
This is a standard approach to the accreditation of entities that will provide aircraft maintenance, meaning that the approach is **giving transparency to organisations that the maintenance is provided by certified and competent organisations and individuals.** The approach is **harmonised** with other types of legislation in a heavily regulated industry.	Due to the type of accreditation involved, the **documentation required is extensive.** High levels of **expertise and skills are required to go through the audit process and on-site visit** both for the organisation and accreditation body. There is **limited information available** on EASAs website about **the process and on-site visit audit**.

Time/Effort ***Cost*** ***Staffing/Skills*** ***Transparency*** ***Scalability*** ***Ease of Maintenance***

Source(s): *PUBLIC Analysis*

Mixed Accreditation

Digital Technology Assessment Criteria (DTAC)

PUBLIC

Digital Technology Assessment Criteria (DTAC)

Approach type: Mixed

Approach Summary

An assessment criteria for **digital health technologies entering and already used in the NHS and social care**. It is used by healthcare organisations to **assess suppliers at the point of procurement** or as part of a due diligence process, to make sure digital technologies meet minimum baseline standards. For developers, it sets out what is expected for entry into the NHS and social care.

Sector	Geography	Conformity Assessment Body	Standards Body
♡	🇬🇧	NHS England	NHS England ico. ISO National Cyber Security Centre

Necessity: Voluntary

Standards: Combination of existing legislation (GDPR, DCB0129 and DCB0160) and best practice

Process overview

Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Open session and consultation	DTAC form completion incl. value proposition	NHS Assessment at procurement	Recommendation	Periodic reassessment
Setting standards	Product meets criteria and gather evidence	Evidence of third-party assessment	Approval or provide feedback for re-assessment	
	Self-assessment	Candidate provides clarification		

Key Assessment Criteria

Technical/Non-Technical.

1. **Clinical safety:** Products are assessed to ensure that clinical safety measures are in place and that organisations undertake clinical risk management activities to manage this risk.
2. **Data protection:** Products are assessed to ensure that data protection and privacy is 'by design'.
3. **Technical assurance:** Products are assessed to ensure that products are secure and stable.
4. **Interoperability:** Products are assessed to ensure that data is communicated accurately and quickly whilst staying safe and secure.
5. **Usability and accessibility:** Products are allocated a conformity rating having been benchmarked against good practice and the NHS service standard.

Source(s): *Using the NHS Digital Technology Assessment Criteria (DTAC) - AI regulation service*

Healthcare technology are assessed on meeting the minimum baseline standards through self and third party reviews

	Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Standards Body NHS England ico. National Cyber Security Centre ISO	Set standards by NHS England based on a **combination of legal requirements and industry best practice, following open sessions and stakeholder consultation**				**Formalise accreditation process** through legislation.
Conformity Assessment Body NHS England (Healthcare providers)	Adapt **internal processes** and **define criteria.**	**Conducts value proposition analysis and requires technology developers to complete the DTAC** and outline the evidence required.	**Assign subject matter expert and conduct assessment** of digital health technologies by staff with relevant subject matter expertise.	**Approval** of technology to be used within an NHS service. Provide **feedback** to candidate. If successful, continue with **procurement** process.	**Conduct periodic reassessment** over elements that have an expiry date or are subject to change with product iteration.
Digital Health Technology Provider	Engage in **open session** and **stakeholder consultation**	Conducts a **self-assessment** using the DTAC assessment tool at the start of procurement. Ensure **product meets the criteria** and gather **evidence** for assessment.	Provide **clarifications** as needed.	**If failed, adapt product** as needed to meet assessment criteria and re-apply. **If successful,** continue with **procurement.**	

***Source(s):**Using the NHS Digital Technology Assessment Criteria (DTAC) - AI regulation service*

DTAC approach to assess technologies used in healthcare technology procurement improves supply chain confidence

Advantages	Disadvantages
Organisations can download the DTAC form from the website and **most of the questions have a yes/no answer format, reducing time and effort spend on completing the questionnaire**.	NHS suggests that as part of each new procurement process or contract renewal, buyers of digital health technology should ask the developer to complete the DTAC, which can could **delay procurement processes.**
Self-assessment tool and DTAC forms are available to download from the NHS website. Organisations **do not need to incur in additional cost** unless they want to hire a third party to conduct independent assessment.	NHS suggests that those with relevant subject matter expertise in the healthcare provider side are involved in the assessment of digital health technologies, **which means utilising qualified resources to assess specific sections of the assessment.**
Simple and clear questionnaire format allows for minimum resources allocation to complete application.	DTAC is a common baseline criteria in terms of safety and security, but it is only one part of procurement - **it is not intended to be the complete question set for procurements** and should be supplemented with additional specifications, **reducing predictability for technology developers.**
NHS **offers both pre-assessment and training support for organisations who want to go through the assessment**. This will facilitate familiarity with the process and timelines.	

Time/Effort ***Cost*** ***Staffing/Skills*** ***Transparency*** ***Scalability*** ***Ease of Maintenance***

Source(s): *PUBLIC Analysis*

Mixed Accreditation

Singapore’s Approach to AI Governance

PUBLIC

Singapore’s Approach to AI Governance

Approach type: Mixed

Approach Summary

Singapore's **AI accreditation process involves companies registering with the government's platform**, AI Verify, to assess their alignment with the AI Model Framework Principles. The AI Verify tool provides a governance testing framework to understand the process and a software toolkit to conduct the conformity assessment. AI Verify tool and the framework are currently under consultation and in the MVP stage.

Sector	Geography	Accreditation Body	Standards Body
🧠	🇸🇬	pdpc IM	pdpc IM

Necessity: Voluntary

Standards: Eight of the eleven PDPC’s AI Model Framework Principles

Process overview

Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Review governance framework	Registration and profile creation	Input test data and qualitative data	Issue of report	Re-assessment (ad-hoc)
Develop Automation Tool	Review application for testing	Technical testing	Provide feedback on automation process	Manage, adapt and iterate automation tool
	Create test scenario	Complete process checklist		

Key Assessment Criteria

Technical/Non-Technical. The AI Verify MVP conducts assessment for 8 of the 11 principles.

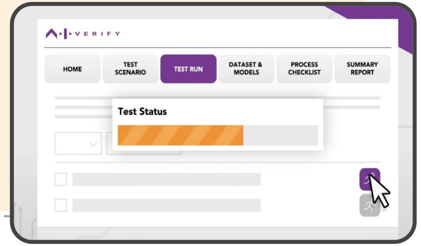
- For Fairness, Robustness, and Accountability, a combination of technical testing and process checklists, where companies document key considerations including rationale, trade-offs, risk assessments, and other feedback relevant to the industry, are required.
- For Transparency, Explainability, Repeatability/Reproducibility, Safety, and Human Agency & Oversight, only process checks (non-technical) are required.

Source(s): Singapore’s Approach to AI Governance

The user-friendly interface of AI Verify provides clarity on process steps, timelines and status

	Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Standards Body IMDA pdpc	**Set out principles / standards** in the Model AI Framework.				**Update of AI standardisation** and **stakeholder engagement.**
Accreditation Body IMDA pdpc	**Developed AI Verify Tool.**	AI Verify Tool **guides** application through process. **Reviews application** for testing.	AI Verify Tool **runs technical testing** and assesses **process checklist** data.	**Issue assessment reports.**	**Manage and update** AI Verify platform based on **consultation feedback.**
Organisation	Review the **governance framework** and supporting materials.	**Register** with the AI Verify Tool. **Create test scenario** and **clean datasets.**	**Provide documentation** required for process checks.Install and initialise **testing scenario**s. **Adjust parameters** and **input datasets.**	**Provide feedback to IMDA on process and AI Verify.**	**Conduct reassessment** with AI Verify as desired. **Continuous engagement** for scheme iteration.

AI Verify Interface



Source(s): *Singapore's Approach to AI Governance*

Automated assessment tools helps promote scalability, with the potential to be replicated across markets and regions

Advantages	Disadvantages
The assessment is **run via an automated assessment tool**, including technical testing which therefore does not require manual labour or review by a FTE. The organisation can **complete the application and run the software independently in a short period of time** (estimated less than 2 hours based on demo). **No expertise is required from the applicant to understand complex standards** or accreditation as the workflow guides applicants through the process. Organisations **can learn and complete the entire assessment independently** and information is provided in multiple formats: i.e. written framework, video guides, interactive workflow/configure test, etc. The **technology is sector agnostic and can be applied to any AI dataset**, services and companies using AI. The testing is done via platform accessible on the Open Web (as of yet). Currently, **there is a high level of engagement across industry** to inform and test the build for the AI Verify tool. Organisations **can run reassessment to their needs.**	The PDPC/IMDA team incurred **up front developer and engineering costs to build and test the framework** and the software to ensure accuracy and effectiveness. A team of **skilled engineers would be required to build the AI Verify software** and continue adapting and testing. Additional expertise in testing AI dataset for the technical assessment would be required at set up and periods of review. The **exact ease of maintenance is uncertain as processes have yet to be determined** (ie. review process, renewal,etc.).

Time/Effort ***Cost*** ***Staffing/Skills*** ***Transparency*** ***Scalability*** ***Ease of Maintenance***

Source(s): *PUBLIC Analysis*

Mixed Accreditation

Cyber Essentials/Cyber Essentials Plus

PUBLIC

Cyber Essentials/Cyber Essentials Plus

Approach type: Mixed

Approach Summary

Government-backed scheme that helps organisations **assess their cyber risk** and **build processes to protect** themselves. There are **two levels of certification**:

1. **Cyber Essentials (CE):** Self-accreditation process
2. **Cyber Essentials Plus (CE+):** Self-accreditation process coupled with a third-party technical verification

Sector	Geography	Accreditation Body	Standards Body
🔒	🇬🇧	IASME CONSORTIUM	National Cyber Security Centre

Necessity: Varies

Standards: NCSC five basic security controls

Process overview

Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Designation of accreditation body	Register with appropriate IASME assessment body	Self-assessment	Recommendation	Renewal of accreditation
Design, train, and qualify assessors	Assign assessor	Validation and verification	Issue of Accreditation / Certification	Apply for CE+ (if only received CE)
	Readiness tool review	Technical audit	Reapplication	Technical review of the scheme
	Application	On-site assessment & testing		

Key Assessment Criteria

Technical/Non-Technical. Reviewing and assessing across the five basic security controls: (1) firewalls: use a firewall to secure your internet connection; (2) secure configuration: choose the most secure settings for your devices and software; (3) user access control: control who has access to your data and services; (4) malware protection: protect yourself from viruses and other malware; (5) security update management: keep your devices and software up to date.

Source(s): *About Cyber Essentials* ; *Get ready for CYBER ESSENTIALS*

The process is well-structured with clear assessment criteria for CE/CE+, however it requires high burden on CE+ applicants

PUBLIC

	Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Standards Body National Cyber Security Centre	**Set standards.**				Conduct ongoing **regular review of the CE/CE+ scheme.** As part of the review, NCSC and IASME **updates technical requirements.**
Accreditation Body IASME CONSORTIUM	**Accreditate and designate IASME members** to carry out scheme. Identify **technical expert for CE+** technical assessment. * **Train and qualify** assessors.	**Provide application** with access to certification information and **assign assessor** and/or **technical expert.***	IASME qualified assessor **reviews submitted self-assessment.** Technical expert conducts **technical audit of IT systems** and performs an on-site visitation for testing. *	Issue report and if failed, **provide feedback** to applicant. If/once successful will **issue certification.**	
Organisation		Review the **CE Readiness toolkit.** Last **CE** was completed **within 3 months.* Register** with **appropriate IASME member. Pay application fee.**	Conduct **Self-assessment.** Company **board member signs the declaration.** Grant **access to technical material** as requested by technical expert.*	Receive feedback to **improve processes.**	**Reapply** for CE, if failed. If successful, can **bid for sensitive central government contracts. Renew accreditation** on an annual basis. CE certified bodies can **apply for CE+** certification.

****Note:** *Applicable for Cyber Essentials Plus only.*

Source(s): *About Cyber Essentials* ; *Get ready for CYBER ESSENTIALS*

CE/CE+ adopts a highly flexible approach to give organisations the optionality of self assessment or third party verification

PUBLIC

Advantages

For CE, a **simple review and verification process is required by the assessor**, while most of the manual labour is carried out by the applicant themselves.

For CE, **organisations can independently complete the self-accreditation process with little needed** speciality in skills, and can designate one FTE over short period of time.

The **Cyber Essentials Readiness Toolkit assists companies in understanding all requirements** and acts as a checklist before undergoing the formal assessment process.

The process is **sector and technology agnostic and applies to a wide range of subjects** (services, systems, product, and organisations). Given this wide approach it can be iterated across many contexts and industries.

Disadvantages

High level of effort is needed to run the technical audit for CE+ as it requires an on site testing for internal and external networks and systems.

Minimum charge for application is £300 and is based on the organisation size.

Accredited bodies must designate a technical expert for CE+, and expected resourcing is higher given an on-site testing process is conducted which could cause high cost for staffing.

Technical expertise is required to carry out the assessment for CE+. Depending on the subject type, expertise in sectors and industry may be required.

To understand the specifics assessment standards for CE+ technical audit, organisations **must contact the IASME member directly and get a quote.**

Given it can be applied to a wide range of subjects, there **may be high frequency of change across both industry** and regulation in which would require a review and potential update of the process of each applicable IASME Member.

Time/Effort ***Cost*** ***Staffing/Skills*** ***Transparency*** ***Scalability*** ***Ease of Maintenance***

Source(s): *PUBLIC Analysis*

Further Insights: Deep Dive Case Studies

PUBLIC

PUBLIC and Ofcom prioritised 3 representative approaches across different sectors for deep-dive case studies

01

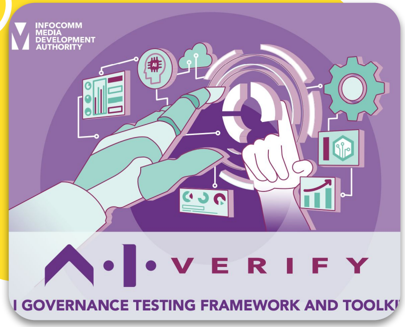
NHS England - Transformation Directorate

Digital Technology Assessment Criteria (DTAC)

NHS England

Digital Technology Assessment Criteria (DTAC)

02


INFOCOMM MEDIA DEVELOPMENT AUTHORITY

A·I·VERIFY

I GOVERNANCE TESTING FRAMEWORK AND TOOLKI

pdpc IMDA

Singapore's AI Governance Testing Framework and Toolkit

03

CYBER ESSENTIALS

CYBER ESSENTIALS PLUS

National Cyber Security Centre

Cyber Essentials Scheme

PUBLIC

Through deep-dive analysis, we summarised key commonalities, advantages and disadvantages of three approaches

	NHS' Digital Technology Assessment Criteria (DTAC)	Singapore's AI Governance Testing Framework and Toolkit	NCSC Cyber Essentials Scheme
Common Themes	● **Mixed, principles based approaches** facilitate flexibility and adaptability to applicants' needs and changing circumstances. ● **Process/documentation check is layered with technical testing** to promote comprehensive assessments. ● Assessment criteria are made **publicly available and accessible** to help applicants prepare for accreditation early.		
Key Advantages	● Builds on a **mix of regulations, standards** and **industry best practice.** ● Uses **simple, clear, transparent** questionnaires for self-assessment to **reduce the burden** on applicants and enable **high scalability.** ● **No application cost** as DTAC requires no accreditation prior to the NHS technology procurement process.	● Aligns with international AI principles and promotes **international collaboration.** ● **Early and continuous engagement** with tech industries, AI testing community, standards bodies and regulators, to **pilot and test** the toolkit. ● The automated assessment process enables **rapid, streamlined self-assessmen**t and **high scalability.** ● **Sector agnostic** with the potential to be applied to all AI systems.	● **The two-pronged approach** provides applicants flexibility and optionality to choose the level of compliance. ● **The tiered pricing structure** ensures accessibility and affordability for businesses of all sizes. ● IASME is a singular accreditation partner to provide **a clear and consistent pathway for applicants.** ● **Regular review of the scheme** by NCSC and IASM to ensure **adaptability** to changing nature of technologies.
Key Disadvantages	● Potential risks of **delayed procurement processes.** ● DTAC **only forms baseline criteria** of safety and security and needs to be assessed together with other specifications.	● **High upfront cost and resource requirements** to build, test and adapt the framework and develop the automated assessment software. ● This approach is **currently under piloting and testing,** with limited evidence of its effectiveness at scale.	● **Uptake and awareness of the scheme remains low** for micro and small organisation. ● **High resource/sector expertise requirements** on the assessor and CE+ applicants to run technical auditing.

NHS

Digital Technology Assessment Criteria (DTAC)

NHS’s Digital Technology Assessment Criteria (DTAC) ensures digital technologies to meet minimum baseline standards

NHS implemented the DTAC **assessment criteria for digital health technologies** entering or already used in the NHS. It gives **staff, patients and citizens confidence** that the digital health tools they use are safe*

CRITICAL SUCCESS FACTORS

Confidence

- **Builds on existing NHS and other regulations**, standards and processes
- **Incentivises uptake with minimum safety, technical and usability criteria**, while reducing the burden to both developers and assessment bodies.

Simplicity

- Assessed in **simple, clear questionnaire format** to **reduce burden** on developer.
- Equips local and national NHS with a **simple decision-making tool for tech adoption.**

High flexibility / accessibility

- DTAC **brings together other best practice standards into a single approach** making it flexible
- **Easily adapted to new forms of technology** within the healthcare industry, either on piloting or testing phases.

LIMITATIONS

- **Lack of legislative framework** for the DTAC, which means that it is used only as guidance for local healthcare providers who want to buy technology.
- Commonly used assessment method for digital suppliers but **uptake thresholds are not standardised** across local healthcare providers

***Note:** NHS first introduced the DTAC in beta in October 2020, and incorporated feedback before launching the first official version in February 2021*

Source(s): Digital Technology Assessment Criteria (DTAC), NHS bodies asked for ‘action plans’ to ensure tech suppliers meet standards | PublicTechnology.net

01

DTAC

The first 4 sections of the DTAC form the technical assessed criteria…

PUBLIC

***DTAC's 4 technical assessment criteria uses pass or fail assessment** to determine the overall success of the product or service*

Technical Assessment Criteria

Criteria	Standard(s)	Assessment Method
Clinical safety: Establishing that the product is clinically safe to use	● **DCB0129 standard** (which applies to technology developers) ● **UK Medical Device Regulations 2002** (MDR 2022)	**To pass**, the developer is required to: ● Confirm they have undertaken Clinical Risk Management activities in compliance with DCB0129 ● Provide evidence that a clinical risk management system is in place and that it is compliant with the requirements set out in DCB0129. ● Submit a Clinical Safety Case Report and Hazard Log compliant with DCB0129 requirements ● Name a CSO which can be through an outsourced arrangement ● Confirm that the product is registered with the MHRA if in scope of MDR 2022 ● Provide documentation about risk classification of the product if in scope of MDR 2022 ● Provide a valid conformity certificate in accordance with DCB0129 if the product connects to any third-party products
Data protection: Establishing whether the product collects, stores and uses personally identifiable data compliantly	● UK GDPR ● **Data Security and Protection Toolkit**	**To pass**, the developer is required to: ● Submit evidence that they have a registration with the ICO or that they do not require one ● Confirm they have a DPO in place where this is mandated or that they are not required to do so. ● Confirm that they are compliant with the Data Security and Protection Toolkit Assessment ● Provide a Data Protection Impact Assessment that is compliant with the GDPR ● confirm that their Data Protection Officer has signed-off the risk assessments and mitigations, access controls and system level security policies ● Confirm where the developer stores and process data (UK, EU or outside of EU) and demonstrate that the country in which the data is processed or stores is compliant with current legislation.

Source(s): *Digital Technology Assessment Criteria for Health and Social Care (DTAC) - Version 1.0 22 February 2021*

01

DTAC

PUBLIC

… these ensure that the product or service is safe to be used by staff, patients and citizens

These criteria will determine the overall success of the assessment of the product or service

Technical Assessment Criteria

Criteria	Standard(s)	Assessment Method
Technical security: Establishing that the product meets industry best practice security standards and that the product is stable	**Cyber Essentials** **Penetration Testing** with no vulnerabilities that score 7.0 or above using the **Common Vulnerability Scoring System (CVSS)**	**To pass**, the developer is required to: ● Have a valid Cyber Essentials certificate ● Evidence that the product has undergone an external penetration test that includes the OWASP top 10 vulnerabilities ● Confirm that an internal or an external custom code security review has been undertaken in accordance with NCSC guidance ● Confirm that all privileged accounts have Multi Factor Authentication in accordance with NCSC guidance ● Confirm that logging and reporting requirements have been clearly defined ● Confirm that load testing has been performed
Interoperability criteria: Establishing how well your product exchanges data with other systems	● ISO/IEEE 10073 ● API guidance issued by **NHS** and **GDS** ● **NHS Login**	**To pass**, the developer is required to: ● Demonstrate that the product have API's follow Government Digital Services Open API Best Practice, are documented and freely available, and that third parties have reasonable access to connect. ● Confirm that if a product uses an NHS number to identify a patient record, that it uses NHS Login ● Confirm that the product has the capability to read/write into Electronic Health Records using industry standards for secure interoperability (i.e. OAuth 2.0, TLS 1.2) ● Evidence compliance with ISO/IEEE 10073

Source(s): *Digital Technology Assessment Criteria for Health and Social Care (DTAC) - Version 1.0 22 February 2021*

Section 5 of DTAC is targeted at ensuring that the product or service is suitable for use

This assessment sets a ***compliance rating.*** *This assessment does not contribute to the overall Assessment Criteria as set out*

Non-technical Assessment Criteria

Criteria	Standard(s)	Assessment Method
Usability and accessibility: Establishing that the product has followed best practice	• NHS service standard • WCAG 2.1 level AA • **Government Digital Service (GDS) guidance** accessibility and accessibility statements	**The non-technical assessment criteria** is scored against the NHS service standard Developers are required to demonstrate: • User need has been taken in account through user research, search data, analytics or other data to understand the problem; • Working towards solving a whole problem for users; • Making the service simple to use (i.e. by showing user acceptance testing to validate usability of the product); • Complying with WCAG 2.1 level AA and publishing accessibility statement • Having a multidisciplinary team; • Using agile ways of working; • Iterating and improving frequently; • Defining what success looks like and being open about how the service is performing; • Ensuring the product meets cloud first and / or internet first; • Using and contributing to open standards, common components and patterns; • Offering a service level agreement, reporting on performance and having an uptime of 99.9% or above.

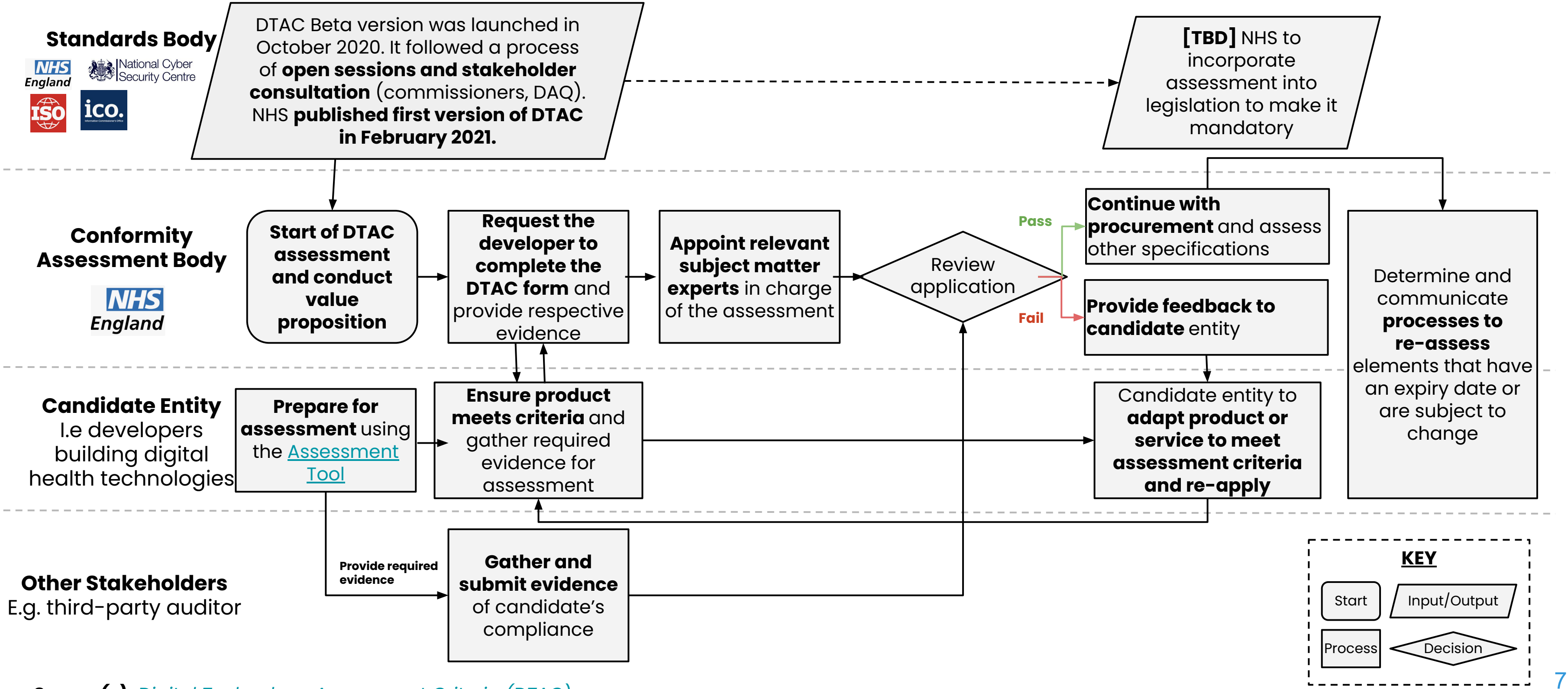
Source(s): *Digital Technology Assessment Criteria for Health and Social Care (DTAC) - Version 1.0 22 February 2021*

01

DTAC

The DTAC is designed to provide clear guidance on how to build and buy fit-for-purpose digital health technologies

PUBLIC



Standards Body

DTAC Beta version was launched in October 2020. It followed a process of **open sessions and stakeholder consultation** (commissioners, DAQ). NHS **published first version of DTAC in February 2021.**

[TBD] NHS to incorporate assessment into legislation to make it mandatory

Conformity Assessment Body

Start of DTAC assessment and conduct value proposition

Request the developer to complete the DTAC form and provide respective evidence

Appoint relevant subject matter experts in charge of the assessment

Review application

Pass

Fail

Continue with procurement and assess other specifications

Provide feedback to candidate entity

Determine and communicate **processes to re-assess** elements that have an expiry date or are subject to change

Candidate Entity
I.e developers building digital health technologies

Prepare for assessment using the Assessment Tool

Ensure product meets criteria and gather required evidence for assessment

Candidate entity to **adapt product or service to meet assessment criteria and re-apply**

Other Stakeholders
E.g. third-party auditor

Provide required evidence

Gather and submit evidence of candidate's compliance

KEY

Start

Input/Output

Process

Decision

Source(s): *Digital Technology Assessment Criteria (DTAC)*

01

DTAC

Developers are responsible for meeting DTAC criteria and providing evidence, while the NHS ensures compliance

PUBLIC

RACI Matrix	Pre-Accreditation	Preparation			Assessment		Attestation		Post-Assessment	
	Definition of assessment criteria	Readiness self assessment	Application for procurement	Value Proposition	Appointment of subject matter expert	Evidence and documentation review	If pass: continue with procurement	If fail: provide feedback and re-apply	Periodic reassessment	Formalisation of accreditation process
Standards Body	R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	A R
Conformity Assessment Body	A R	N/A	I	A R	A R	A R	A R	A R	R	R C
Candidate Entity I.e developers building digital health technologies	C	A R	A R	R	I	R	I R	I R	A R	C (TBD)
Other Stakeholders E.g. third-party compliance services	C	R	C	R	N/A	A R	I	I	N/A	N/A

KEY

A	Accountable: Those who are ultimately accountable for the correct and thorough completion of the deliverable or task
R	Responsible: Those who do the work to achieve the task. There can be several R to perform one task
C	Consulted: Those whose opinions are sought. Two-way communication
I	Informed: Those who are kept up-to-date on progress, often only on completion of the task or deliverable. One-way communication
N/A	Not Applicable: Those who are not involved in the task.

Source(s): Digital Technology Assessment Criteria (DTAC), *PUBLIC analysis*

The DTAC is a questionnaire with yes/no answers, reducing the burden on the candidate through the assessment process

Roles by Phase	Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Standards Body ico. NHS England National Cyber Security Centre ISO	Publication of standards for developers of digital health technology	N/A	N/A	N/A	Formalise accreditation process through legislation
Conformity Assessment Body NHS England	Adapt internal processes and define criteria	Value Proposition	Appointment of subject matter expert and documentation review	Continue with procurement or provide feedback	Determine and communicate processes to re-assess elements that have an expiry date or are subject to change
Candidate Entity I.e developers building digital health technologies	Sector expertise to inform consultation	Self-Assessment: ensure product meets criteria and gather required evidence for assessment	Wait for assessment and provide any clarifications	Incorporate feedback to re-apply, or continue with procurement	
Other Stakeholders E.g. third-party compliance services	N/A	Gather evidence and conduct audit	Provide evidence of compliance with standards	N/A	N/A

KEY

- High effort/resourcing
- Medium effort/resourcing
- Low effort/resourcing

Source(s): Digital Technology Assessment Criteria (DTAC), *PUBLIC analysis*

Singapore’s IMDA/PDPC

AI Governance Testing Framework and Toolkit

Singapore's media and data regulators have developed and piloted an innovative tool to AI governance

*Infocomm Media Development Authority (IMDA) and Personal Data Protection Commission (PDPC) have launched AI Verify, a **voluntary self-assessment tool of AI systems***, to foster public trust and support the increasing use in AI.*

KEY STATS

10

*Organisations participated in the **minimum viable product (MVP) pilot** of AI Verify in May 2022. They include organisations such as AWS, Meta, Google, Microsoft, Singapore Airlines, among others.*

CRITICAL SUCCESS FACTORS

Collaboration & iteration	**Collaborative pilot approach** and stakeholder engagement ensures the framework and toolkit **meets user needs** and can **adapt to evolving technologies.**
Scalability via automation	**Automated** process enables **rapid, streamlined** self-assessment, **scalability** and **accommodates high volumes** AI Verify is intended to be **deployed in the user's environment** and is packaged into a Docker container for **easy deployment.**
User flexibility/ accessibility	**User-friendly interface and intuitive guides** allow organisations to navigate testing scenarios and **tailor it to their specific needs.**

LIMITATIONS

- The MVP of AI Verify is **not yet applicable to images or large models.**
- **Results may be limited and oversimplified due to** absence of human review, assessment.
- Singapore's approach is **in an early pilot phase**, and thus it is **not proven at scale.**
- **High upfront costs** are required to develop automated software.

Note:** AI Verify is currently available as a MVP, only able to support binary classification and regression model. IMDA and will work with the industry and AI testing community to **develop third-party testing and certification in the longer term.

Source(s): *AI Governance Testing Framework and Toolkit: Invitation to Pilot, Singapore's Approach to AI Governance, PUBLIC Analysis*

02 AI Verify

Eleven principles of AI ethics are assessed through a combination of technical testing…

PUBLIC

*Technical testing for three principles: **Explainability, Robustness and Fairness** is conducted by AI Verify's one-stop toolkit deployed in the **user's environment** that **packages widely-adapted open-source** technical testing tools*

Technical Assessment

Criteria	**Assessment Method** i.e. technical testing	**Testing Toolkits** (Available on GitHub)
Explainability: Ability to understand and interpret what the AI system is doing	Technical tests are conducted to identify factors contributing to AI model's output.	• Shapley Additive exPlanations (SHAP)
Robustness: Ensuring that AI system can still function despite unexpected inputs	Technical tests attempt to assess if a model performs as expected even when provided with unexpected inputs.	• Adversarial Robustness Toolkit
Fairness (Mitigation of unintended discrimination): AI systems makes same decision even if an attribute is changed	Technical tests check that an AI model is not biased on protected or sensitive attributes specified by the AI system owner, by checking the model output against the ground truth.	• AI Fairness 360 (AIF360) • Fairlearn

Example: Explainability

Testable Criteria	For each model being developed, run explainability methods to help users understand the drivers of the AI model.
Testing Process	Perform analysis to determine feature contributions.
Metric	Features contributing to model output as obtained from technical tool
Threshold	N/A
Technical Tool	IMDA Toolkit (comprising SHAP and LIME tools)

Source(s): *AI Governance Testing Framework and Toolkit: Invitation to Pilot, Embedded above*

02

AI Verify

…and a process checklist for non-technical assessment

PUBLIC

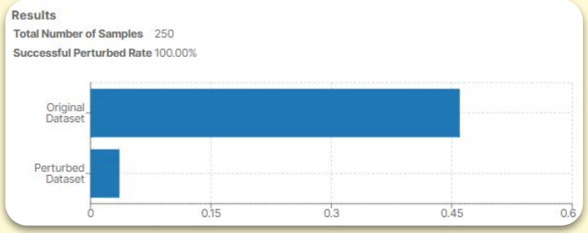
*All eleven principles are assessed through **11 process checklist against 85 criteria by an automated system.***

Non-technical Assessment

Criteria	**Assessment Method** (i.e. process checklist)
Explainability: Ability to understand and interpret what the AI system is doing	Check considerations given to the choice of models, such as rationale, risk assessments, and trade-offs of the AI model.
Robustness: Ensuring that AI system can still function despite unexpected inputs	Check documentary evidence and review of factors that may affect the performance of AI model, including adversarial attacks.
Fairness: AI systems makes same decision even if an attribute is changed	Check documentary evidence of having a strategy for the selection of fairness metrics that are aligned with the desired outcomes of the AI system's intended application; and the definition of sensitive attributes are consistent with the legislation and corporate values.
Transparency: Appropriate information is provided to individuals impacted by AI system	Check documentary evidence of providing appropriate information to individuals who may be impacted by the AI system (i.e. under the condition of not compromising IP, safety, and system integrity, use of AI in the system, intended use, limitations, and risk assessment)
Repeatability/ Reproducibility: Ability to replicate an AI system's results	Check documentary evidence including evidence of AI model provenance, data provenance and use of versioning tools.
Safety: Known risks have been identified/mitigated	Check documentary evidence of materiality assessment and risk assessment, including how known risks of the AI system have been identified and mitigated.
Accountability: Proper management and oversight of AI system development	Check documentary evidence, including evidence of clear internal governance mechanisms for proper management oversight of the AI system's development and deployment.
Human agency and oversight: AI system designed in a way that will not decrease human ability to make decisions	Check documentary evidence that AI system is designed in a way that will not reduce human's ability to make decisions or to take control of the system. This includes defining role of human in its oversight and control of the AI system such as human-in-the-loop, over-the-loop, or out-of-the-loop
Security: AI systems can maintain confidentiality, integrity, and availability through protection mechanisms	Check documentary evidence of team competency, evidence of conducting security risks assessment at the inception of AI system development, and security measures throughout the AY system lifecycle
Data Governance: Governing data used in AI systems	Check documentary evidence of measures to understand the lineage of data and data practices to comply with regulatory requirements and industry standards.
Inclusive growth, societal & environmental well-being: Trustworth AI to contribute to overall growth and prosperity for all	Check documentary evidence of the broader implications of the AI system beyond its functional and commercial objectives.

Source(s): [AI Governance Testing Framework and Toolkit: Invitation to Pilot]

Although not assessing AI accuracy directly, the assessment of fairness and robustness ties closely with accuracy metrics

	Fairness *The assessment algorithm computes a list of fairness metrics to measure how correctly an AI model predicts among the given set of sensitive features.*	**Robustness** *The assessment plugin generates a perturbed dataset using [boundary attack](#) algorithm on the test dataset.*
Relevance to Accuracy	The measurement of fairness is based on a list of **metrics used to measure accuracy** including: ● False Negative Rate ● False Positive Rate ● False Discovery Rate ● False Omission Rate ● True Positive Rate ● True Negative Rate ● Positive Predictive Value ● Negative Predictive Value **Other metrics** used to measure fairness includes: ● Equal Selection Parity ● Disparate Impact	AI Verify generate and display a bar chart of the original and perturbed dataset with interpretation of the results to **reflect the performance/accuracy of the AI model.**  Results Total Number of Samples 250 Successful Perturbed Rate 100.00% Original Dataset Perturbed Dataset 0 0.15 0.3 0.45 0.6 The longer the bar, the higher accuracy of the model.

Source(s): [AI Verify Developer Documentation](#)

02

AI Verify

The pilot has embedded a feedback loop to collate industry best practice and feedback to inform iteration and further R&D

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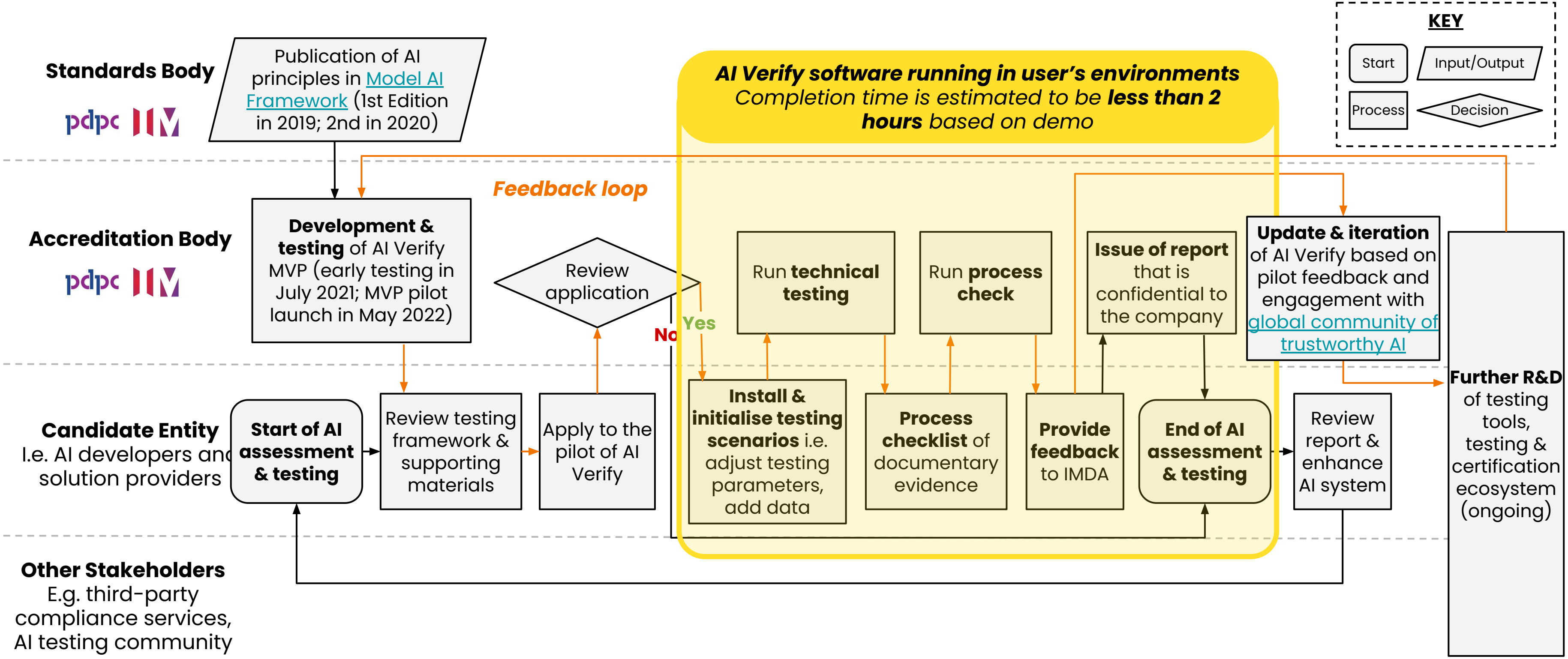


KEY

Start

Input/Output

Process

Decision

Standards Body

Publication of AI principles in Model AI Framework (1st Edition in 2019; 2nd in 2020)

Accreditation Body

Development & testing of AI Verify MVP (early testing in July 2021; MVP pilot launch in May 2022)

Review application

No

Yes

Feedback loop

Candidate Entity

I.e. AI developers and solution providers

Start of AI assessment & testing

Review testing framework & supporting materials

Apply to the pilot of AI Verify

AI Verify software running in user's environments

*Completion time is estimated to be **less than 2 hours** based on demo*

Install & initialise testing scenarios i.e. adjust testing parameters, add data

Run technical testing

Process checklist of documentary evidence

Run process check

Provide feedback to IMDA

Issue of report that is confidential to the company

End of AI assessment & testing

Update & iteration of AI Verify based on pilot feedback and engagement with global community of trustworthy AI

Review report & enhance AI system

Further R&D of testing tools, testing & certification ecosystem (ongoing)

Other Stakeholders

E.g. third-party compliance services, AI testing community

Source(s): *AI Governance Testing Framework and Toolkit: Invitation to Pilot, Background on Singapore's AI Governance Work Overview, PUBLIC Analysis*

Cross-sector collaboration plays a key role in building an AI accreditation ecosystem

RACI Matrix	Pre-Accreditation		Preparation		Assessment		Attestation		Post-Assessment	
	High-level principles set out	AI Verify development	Application	Creation of test scenario	Technical testing	Process checklist	Issue of report	Renewal of testing	Maintenance & feedback	Development of future certification scheme
Standards Body pdpc	A R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C
Accreditation Body pdpc	N/A	A R	I	R	R	R	A R	R	A R	A R
Candidate Entity I.e. AI developers and solution providers	C	C	A R	A R	A R	A R	I	A R	C	C
Other Stakeholders E.g. third-party compliance services, AI testing community	C	C	N/A	N/A	C	N/A	N/A	N/A	C	R C

KEY

A	Accountable: Those who are ultimately accountable for the correct and thorough completion of the deliverable or task
R	Responsible: Those who do the work to achieve the task. There can be several R to perform one task
C	Consulted: Those whose opinions are sought. Two-way communication
I	Informed: Those who are kept up-to-date on progress, often only on completion of the task or deliverable. One-way communication
N/A	Not Applicable: Those who are not involved in the task.

Source(s): *AI Governance Testing Framework and Toolkit: Invitation to Pilot, Background on Singapore's AI Governance Work Overview, PUBLIC Analysis*

Singaporean regulators invested high technical effort upfront in developing automated testing tools to reduce ongoing burden

Roles by Phase	Pre-Accreditation	Preparation	Assessment	Attestation	Post-Assessment
Standards Body	International AI ethics; AI standardisation; Stakeholder engagement	N/A	N/A	N/A	AI standardisation; Stakeholder engagement
Accreditation Body	Software engineering and development; User experience design	Expertise in AI testing	Software maintenance	Software maintenance	Expertise in AI testing; Software engineering Stakeholder engagement
Candidate Entity I.e. AI developers and solution providers	Technical expertise in AI (Ethical use of AI and data)	Software deployment; Application submission	Document uploading & data input	N/A	Technical expertise in AI (Ethical use of AI and data)
Other Stakeholders E.g. third-party compliance services, AI testing community	Technical expertise in AI (Ethical use of AI and data)	N/A	XYZ	N/A	Technical expertise in AI testing and certification; Accreditation schemes

KEY

- High effort/resourcing
- Medium effort/resourcing
- Low effort/resourcing

Source(s): *Developing MVP for AI Governance Testing Framework (IMDA/PDPC), PUBLIC Analysis*

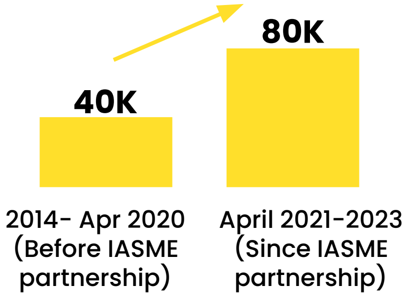
National Cyber Security Centre (NCSC)

Cyber Essentials Scheme

Cyber Essentials is a government-backed technical accreditation scheme with a third-party delivery partner

*Partnering with **IASME Consortium**, the **National Cyber Security Centre (NCSC)** examines organisations' cyber risks through **independently verified self-assessment** (Cyber Essential, CE) and **additional technical audit** (Cyber Essential Plus, CE+), to **protect from most common cyber threats** and **demonstrate commitment** to cyber security*

KEY STATS



Total certificates awarded over time ([Data valid until March 2023](#))

CRITICAL SUCCESS FACTORS

Ongoing regular review

- **Regular review and evaluation** of the scheme ensures it keeps **evolving as the threat landscape and technology change**

High flexibility / accessibility

- **Two levels of certification** offer different levels of assurance, providing **flexibility** for organisations
- **Tiered pricing structure** ensures **accessibility** and **affordability** for businesses of all sizes.

Single pathway to accreditation

- **Singular delivery partner** via IASME
- **Clear and consistent pathway** for organisations to achieve CE/CE+ certification

LIMITATIONS

- The overall awareness of the scheme (14%) and adherence (5% for CE, 2% CE+) **remains low.** Med (8%) and large (12%) organisations indicated they adhere to standards, but **do not seek accreditation** whereas micro businesses indicated a **significant decrease** in reporting cybersecurity as a high priority (80% in 2022 to 68% 2023).
- Organisations bear **high burdens** of **annual renewal** which follows the same process as new accreditations.

****Note:** The CE/CE+ scheme was set up in 2014. The partnership with IASME Consortium as **the accreditation body** of CE/CE+ schemes has started since April 2020.*

Source(s): *[Cyber Essentials scheme: overview](#), [NCSC blog](#), [NCSC News: new look scheme protects businesses from cyber attack](#), [Review of Cyber Essentials influence on cyber security attitudes and behaviours in UK organisations](#), [Cyber security breaches survey 2023](#), PUBLIC Analysis*

03

CE/CE+

A common 5 technical criteria are used for CE and CE+, incl. the use of firewalls, secure configuration management…

PUBLIC

*Organisations must demonstrate their compliance with **5 technical security controls (shown in this slide and next)** by completing a **self-assessment questionnaire** of binary choice, multiple choice, and text-based answers.*

Technical Assessment Criteria for CE/CE+ (1 of 2)

#	Criteria	Metrics	Assessment Method
1	**Firewalls:** Use a firewall to secure internet connection	Organisations must protect every device in scope with a correctly configured firewall (or network device with firewall functionality). This includes: ● Change default administrative passwords to a strong and unique password or disable remote administrative access entirely ● Prevent access to the administrative interface from the internet ● Block unauthenticated inbound connections by default ● Ensure inbound firewall rules are approved and documented by an authorised person, and include The business need in the documentation ● Remove or disable unnecessary firewall rules quickly, when they are no longer needed	● 12 questions ● Multiple choice, binary choice and text-based description where necessary.
2	**Secure configuration:** Choose the most secure settings for devices and software	Organisations must proactively manage their computers and network devices. This includes regularly: ● Remove and disable unnecessary user accounts ● Change any default or guessable account passwords ● Remove or disable unnecessary software ● Disable any auto-run feature which allows file execution without user authorisation ● Ensure users are authenticated before allowing them access to organisational data or services ● Ensure appropriate device locking controls for users that are physically present	● 10 questions ● Multiple choice, binary choice and text-based description where necessary.

Source(s): *NCSC Cyber Essentials Resources, Cyber Essentials Self-assessment questionnaire, Cyber Essentials: Requirements for IT infrastructure v3.1*

03

CE/CE+

…security update management, user access control, and malware protection

PUBLIC

Technical Assessment Criteria for CE/CE+ (2 of 2)

#	Criteria	Metrics	Assessment Method
3	**Security update management:** Keep devices and software up to date	Organisations must make sure that all software in scope is kept up to date. All software on in-scope devices must: ● Be licensed and supported ● Removed from devices when it becomes unsupported or removed from scope by using a defined subset that prevents all traffic to / from the internet ● Have automatic updates enabled where possible ● Be updated, including applying any manual configuration changes required to make the update effective, within 14 days of an update being released	● 7 questions ● Binary choice and text-based description where necessary
4	**User access control:** Control who has access to data and services	Organisations must be in control of their user accounts and the access privileges that allow access to their organisational data and services, and need to understand how user accounts authenticate and manage the authentication accordingly. This includes: ● Have in place a process to create and approve user accounts ● Authenticate users with unique credentials before granting access to applications or devices ● Remove or disable user accounts when they're no longer required ● Implement multi-factor authentication (MFA), where available ● Use separate accounts to perform administrative activities only ● Remove or disable special access privileges when no longer required	● 17 questions ● Binary choice and text-based description where necessary
5	**Malware protection:** Protect from viruses and other malware	Organisations must make sure that a malware protection mechanism is active on all devices in scope.	● 5 questions ● Multiple choice and binary choice.

Source(s): *NCSC Cyber Essentials Resources, Cyber Essentials Self-assessment questionnaire, Cyber Essentials: Requirements for IT infrastructure v3.1*

03

CE/CE+

To achieve CE+ certification, an additional technical auditing process is required by a licensed third-party

PUBLIC

*Organisations must meet the requirements of **both CE and additional technical auditing** (i.e. passing all test case and sub-test) to achieve CE+ certification. Technical auditing is conducted by an independent, licensed IASME body.*

Additional Technical Auditing for CE+

#	Test Case	Testing Method
1	**Remote vulnerability assessment:** Test whether an Internet-based opportunist attacker can hack into the Applicant's system with typical low-skill methods.	**Vulnerability scanning.** An external port scan of internet facing IP addresses will be conducted to ensure no clear and obvious misconfigurations or vulnerabilities can be identified.
2	**Check patching by authenticated vulnerability scan of devices:** Identify missing patches and security updates that leave vulnerabilities that threats within the scope of the scheme could easily exploit.	**Representative sample testing.** This test is performed on sampled end user devices (EUDs) that can connect to organisational data or services, servers and IaaS instances
3	**Check malware protection:** Check that all the devices in scope benefit from at least a basic level of malware protection	**Representative sample testing.** This test is performed on sampled sampled EUD, servers that provide a user-interactive desktop and IaaS instances.
4	**Check Multi-factor authentication (MFA) configuration:** Test cloud services declared in scope have been configured for MFA	**Representative sample testing.** This test is performed on all cloud services (IaaS, Paas, or SaaS). All cloud services must be tested using a representative sample of user accounts. This must consist of at least one normal user and one administrative user for every cloud service used. The same users can be used across multiple cloud services.
5	**Check account separation:** Test user accounts don't have administrator privileges assigned.	**Representative sample testing.** This test is performed on sampled EUD, servers that provide a user-interactive desktop and cloud environments where administrative processes can run.

Source(s): *Cyber Essentials Plus: Illustrative Test Specification v3.1*

03

CE/CE+

IASME bodies conducting technical auditing must ensure the testing sample is representative of all devices in scope

PUBLIC

*Representative sample testing is used for all computing devices including **end user devices** (EUDs), **internally hosted servers**, **and all cloud services** (IaaS, Paas, or SaaS).*

Additional Technical Auditing for CE+

For servers and EUDs

- The actual number of representative devices needed for test to achieve a satisfied level of confidence will **depend on the amount of variation** that exists as a result of the applicant's particular provisioning processes, and their effectiveness.
- Many organisations use standardised configurations for their servers and EUDs. In such cases, much of the organisation's equipment **can be covered by a small number of representative samples.**

For cloud services

- All cloud services must be tested using a representative sample of user accounts. This must **consist of at least one normal user and one administrative user for every cloud service used.** The same users can be used across multiple cloud services.

Source(s): *Cyber Essentials Plus: Illustrative Test Specification v3.1*

To obtain CE+ certification, applicants must pass every test case and sub-test of technical auditing

PUBLIC

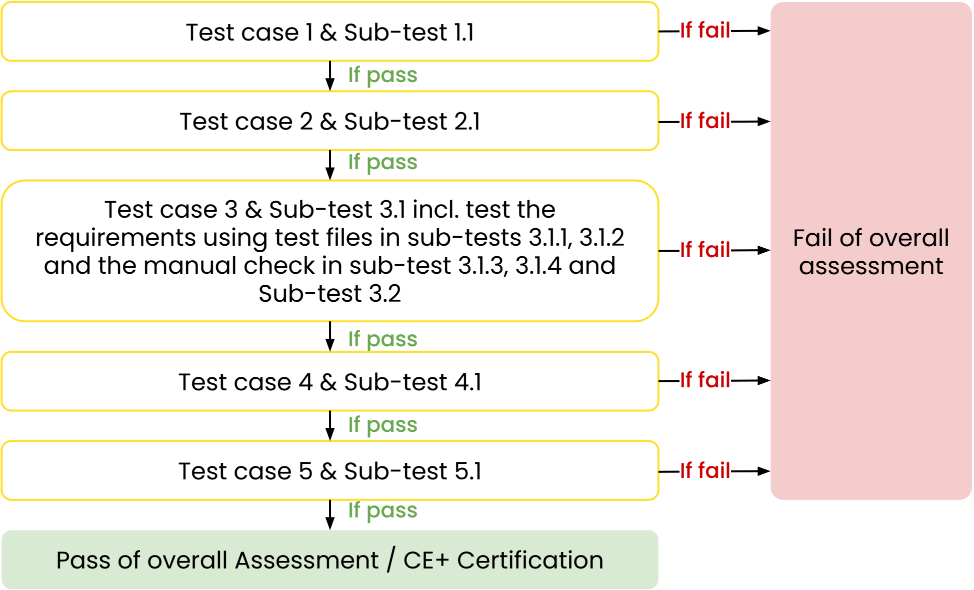
Additional Technical Auditing for CE+

Test Prerequisites

Prior to testing, **IASME licensed technical auditors must ensure** they:

- Obtained the appropriate **written permission** from the applicant and **agreed the details and timing** of testing with the applicant;
- Have the **correct template** for the report;
- **Are able to** send arbitrary emails to an account operated by the applicant, test files, hosted on an external website owned by the certification body, access users with appropriate credentials to perform the tests, and working email clients and web browsers on a sample of the end user devices in scope.
- Have an **approved vulnerability scanning tool**
- Have **selected appropriate samples and sub-samples**

Test Results Interpretation


Test case 1 & Sub-test 1.1
If fail
If pass
Test case 2 & Sub-test 2.1
If fail
If pass
Test case 3 & Sub-test 3.1 incl. test the requirements using test files in sub-tests 3.1.1, 3.1.2 and the manual check in sub-test 3.1.3, 3.1.4 and Sub-test 3.2
If fail
If pass
Test case 4 & Sub-test 4.1
If fail
If pass
Test case 5 & Sub-test 5.1
If fail
If pass
Pass of overall Assessment / CE+ Certification
Fail of overall assessment

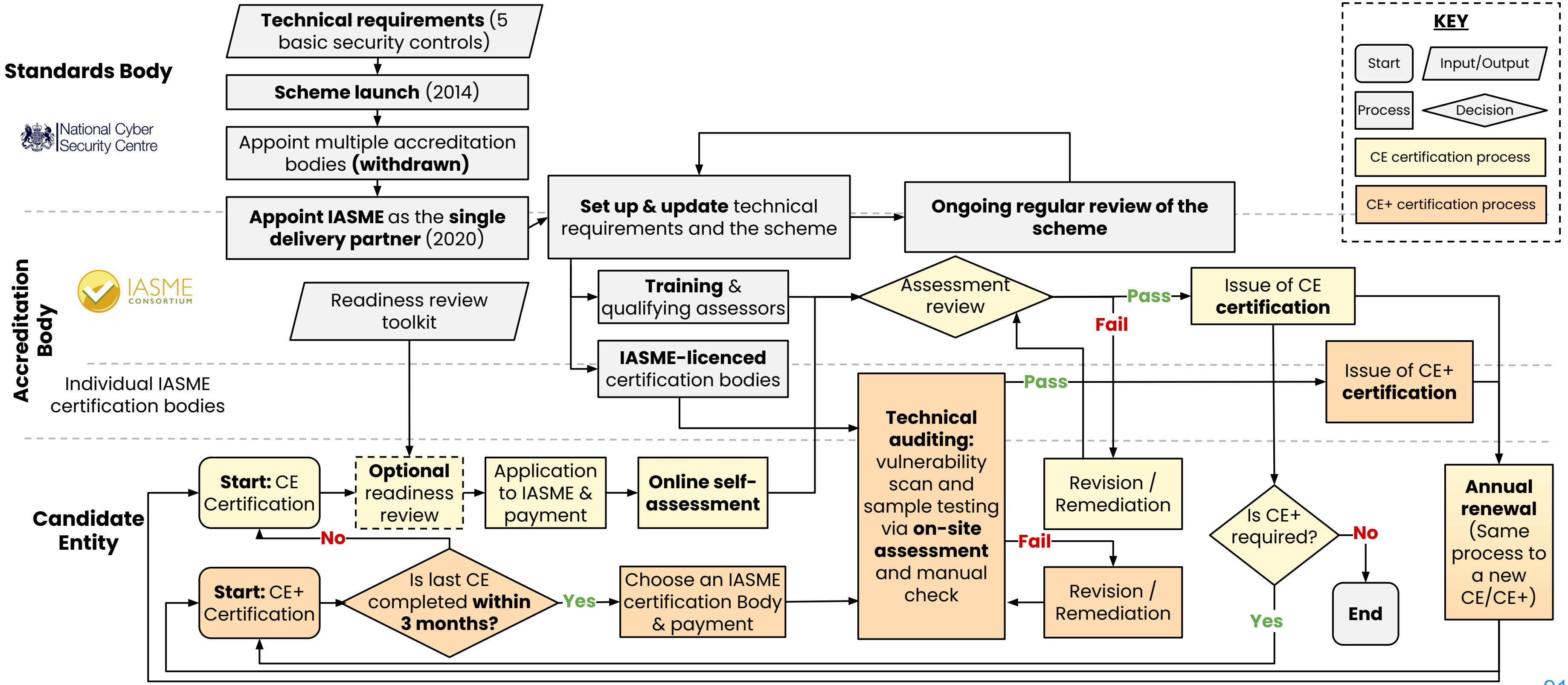
Source(s): *Cyber Essentials Plus: Illustrative Test Specification v3.1*

03

CE/CE+

Due to its two-pronged approach, the Cyber Essentials forks into two processes - CE and CE+

PUBLIC



Standards Body

National Cyber Security Centre

Technical requirements (5 basic security controls)

Scheme launch (2014)

Appoint multiple accreditation bodies **(withdrawn)**

Appoint IASME as the **single delivery partner** (2020)

Accreditation Body

IASME CONSORTIUM

Set up & update technical requirements and the scheme

Ongoing regular review of the scheme

Readiness review toolkit

Training & qualifying assessors

IASME-licenced certification bodies

Assessment review

Pass

Fail

Issue of CE **certification**

Individual IASME certification bodies

Pass

Issue of CE+ **certification**

Technical auditing: vulnerability scan and sample testing via **on-site assessment** and manual check

Candidate Entity

Start: CE Certification

Optional readiness review

Application to IASME & payment

Online self-assessment

Revision / Remediation

No

Is CE+ required?

No

Fail

Start: CE+ Certification

Is last CE completed **within 3 months?**

Yes

Choose an IASME certification Body & payment

Revision / Remediation

Yes

End

Annual renewal (Same process to a new CE/CE+)

KEY

Start

Input/Output

Process

Decision

CE certification process

CE+ certification process

Source(s): IASME Cyber Essentials, NCSC Cyber Essentials, NCSC News: new look scheme protects businesses from cyber attack

03

CE/CE+

NCSC leads the initiation, oversight and maintenance of the scheme and IASME is responsible for delivery and regular review

PUBLIC

RACI Matrix		Pre-Accreditation		Preparation		Assessment			Attestation		Post-Assessment		
						CE		CE+					
		Technical requirements set out	Designation of accreditation body	Readiness review	Application	Self-assessment	Verification by qualified assessors	Technical auditing (incl. On-site assessment)	Feedback and Remediation	Issue of certification	Reapplication (if fail)	Renewal of certification	Technical requirements regular review & update
Standards Body	National Cyber Security Centre	A R	A R	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	A R
Accreditation Body	IASME CONSORTIUM	N/A	C	N/A	I (CE)	R	A R	A	A	A R	I (CE)	A	R
	Individual IASME certification bodies	N/A	N/A	N/A	I (CE+)	N/A	N/A	R	R	C	I (CE+)	R	I
Candidate Entity		N/A	N/A	A R	A R	A R	N/A	R	R	I	A R	R	N/A

KEY

- A Accountable: Those who are ultimately accountable for the correct and thorough completion of the deliverable or task
- R Responsible: Those who do the work to achieve the task. There can be several R to perform one task
- C Consulted: Those whose opinions are sought. Two-way communication
- I Informed: Those who are kept up-to-date on progress, often only on completion of the task or deliverable. One-way communication
- N/A Not Applicable: Those who are not involved in the task.

Source(s): IASME Cyber Essentials, NCSC Cyber Essentials Resources, Cyber Essentials technical requirements updated for April 2023, *PUBLIC Analysis*

03

CE/CE+

All parties need to have technical domain expertise and exert high/med effort for maintenance in response to evolving cyber threats

PUBLIC

Roles by Phase		Pre-Accreditation	Preparation	Assessment		Attestation	Post-Assessment
				CE	CE+		
Standards Body National Cyber Security Centre		Technical expertise in cybersecurity; Accreditation design; Compliance support	N/A	N/A	N/A	N/A	Expertise in cyber & evolving threats; Accreditation maintenance; Training
Accreditation Body	IASME CONSORTIUM	Technical expertise; Accreditation design; Compliance support (e.g. readiness tool)	Training for assessors	Qualified assessor	Quality assurance	Quality assurance; Provision of reports and/or certificates	Technical expertise in cybersecurity; Accreditation maintenance; Training
	Individual IASME certification bodies	Technical expertise; Licensed by IASME	Assign technical auditor	N/A	Qualified auditor; Technical expertise	Technical expertise; Provision of assessment report	Training; Qualified auditor; Technical expertise
Candidate Entity		N/A	Eligibility and registration; Readiness review; Application fee	Technical expertise	Technical expertise	Technical expertise; Remediation effort;	Technical expertise; Reapplication / renewal fee & effort

KEY

- High effort/resourcing
- Medium effort/resourcing
- Low effort/resourcing

Source(s): *IASME Cyber Essentials, NCSC Cyber Essentials Resources, PUBLIC Analysis*

Conclusions

Conclusions

- To support Ofcom in its development of a robust **knowledge and evidence base on how technologies are evaluated and accredited, PUBLIC conducted research on accreditation approaches** used to ensure quality and consistency of products and services across various industries.
- Our research found that **the landscape of accreditation schemes is diverse, with a wide range of sectors and industries having their own unique accreditation systems**. These schemes often **cater to specific needs and challenges of each industry**, enabling organisations to meet specific standards and requirements.
- The effectiveness of the accreditation schemes we assessed **rely on characteristics that ensure they remain effective**. These centre primarily on their **adoption** (incentivising uptake, managing level of effort on parties involved), **continuous improvement** (adaptability to changing circumstances and facilitate scalability) and **structure** (type of approach, underlying principles and governance practices).
- In **fast-moving technology areas and innovative industries, the design of standards and accreditation processes is likely to be particularly challenging**. Many regulators and accreditation bodies have **chosen principles-based standards, and adaptable assessment** criteria in these areas, to ensure they remain relevant and effective.
- **Looking forward, cross-industry collaboration and harmonization among accreditation bodies** (nationally and internationally) is critical for **streamlining processes and minimising duplication of efforts.**

During our research we identified evidence gaps that were not publicly available or out of scope of this research project

PUBLIC

Evidence Area	Evidence Gap	Future Mitigation
Process	Depending on the type of approach, accreditation bodies will request candidates to submit evidence and documentation. However, limited stakeholder engagement has prevented us to **understand the barriers for accreditors in accessing such evidence** and documentation from applicants and **how that impacts the accreditation process**.	• **Stakeholder outreach** to collect accreditation materials and **interviews** with accreditations bodies
Cost	There is very limited publicly available information around the **exact costs for candidates** that want to go through the accreditation process. This has limited our capacity to understand how the **fees varies** depending on applicants size and type of industry, how fees are **calculated by accreditation bodies** and **the difference in cost** between product and service.	• **Stakeholder interviews** with accreditations bodies
Effort	Given variances in level of review methods, evidence types and stakeholder engagement during application, **the average time spent in applying and reviewing varies significantly** per accreditation scheme. **Exact determination of factors that impact time averages and variances** cannot determined without further engagement.	• **Stakeholder interviews** with accreditations bodies and **user interviews** with target applicants (ie. third-party tech providers)
Uptake	Accreditation bodies do not always publicly report **the volume of drafted or completed applications,** including the success and drop-out rates. Additionally, for those who engage with applicants and accredited bodies **outside of the application process**, they do not publicly share which events or resources incentivise and engage applicants.	• **Stakeholder outreach** to collect accreditation materials and **user interviews** with target applicants (ie. third-party tech providers)
Tech Landscape	To best inform Ofcom's accreditation scheme, it is key to understand **the technical landscape** across target users, including their solutions' technical archetypes, datasets, and more. Given the team did not conduct stakeholder interviews, there is a gap in understanding **the barriers accreditors face in collecting and reviewing evidence,** such as IP protection and sensitive data handling processes.	• **Stakeholder interviews** with accreditations bodies • **User interviews** with target applicants ('SafetyTech') • **Tech landscape mapping** through desk research • **Tech horizon scanning** to identify key potential barriers and changes

Source(s): *PUBLIC Analysis*

Appendix

Project definitions 1/2

PUBLIC

Concept	Definition	Sources
Accreditation	Accreditation refers to two scenario: (1) the assessment of the conformity of products/services or providers of products/services with a set of criteria; (2) the assessment of the competence and impartiality of an organisation/individual that performs activities involved in (1). Please note that (1) does not necessarily require (2), but (2) can serve as a pre-accreditation step for scenario (1) when high levels of assurance are required.	PUBLIC definition: pulled from UKAS definition of certification and accreditation
Accreditation Body	The party that carries out the accreditation process.	Adapted from accreditation definition
Accreditation Process	We use accreditation process to refer to the process followed by all the involved parties to achieve the accreditation, assessment or certification	PUBLIC definition
Accreditation Scheme	We use accreditation scheme to refer to the specific systems for accrediting a technology or a service	PUBLIC definition
Certification	The provision by an independent body of written assurance (a certificate) that the product, service or system in question meets specific requirements.	ISO Definition
Conformity Assessment	A process whereby a product, procedure, organisation, service or system is evaluated or measured against the relevant requirements. Such requirements are stated in standards, regulations, contracts, programmes, or other normative documents. Note, activities associated with conformity assessment include testing, inspection, certification, approval accreditation body, and quality assurance system registration.	A combination of the ISO definition, IEEE SA definition, & HMG definition
Conformity Assessment Body	The party that carries out the conformity assessment.	Adapted from conformity assessment definition

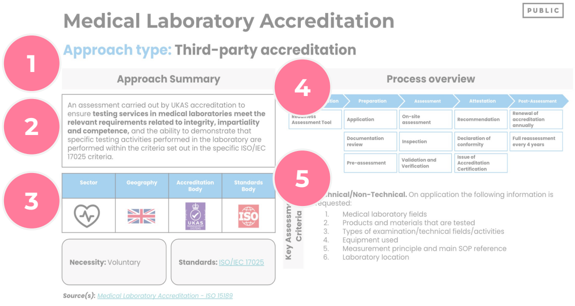
Project definitions 2/2

PUBLIC

Concept	Definition	Sources
Mixed approach Accreditation	Mix approach combines multiple accreditation approaches (e.g. verified self-assessment in combination with formal third-party accreditation, self-assessment overseen by a third party). This type of approach may or may not involve a third-party body serving as a formally approved accreditation body, an informal assessment body, or an oversight body, etc.	PUBLIC definition adapted from definitions of accreditation(s)
Principles-based approach to accreditation	Approach where the primary focus is on adherence with underlying principles that describe the objective of the accreditation scheme. A typical approach involves developing a framework with high-level principles set in legislation that in-scope organisations can adhere to.	PUBLIC based on Ofcom and MJA
Rules-based approach to accreditation	Approach where the primary focus is on compliance with a set of rules (i.e technical standards) in a prescriptive way. A typical approach involves developing (or adopting) a set of "standards", and employing an auditing process to confirm that those standards have been met or not and the respective consequences.	PUBLIC based on Ofcom and MJA
Standardisation	Standardisation is the process of creating, issuing and implementing standards.	HMG definition
Standards	A standard is a document, commonly/often established by consensus and approved by a recognised body that provides rules, guidelines or characteristics for activities or their results. The aim is to achieve the greatest degree of order in a given context. Standards should provide a reliable basis for people to share the same expectations about a product or service.	PUBLIC & Ofcom definition adapted from HMG & BSI
Standardisation Body	The party that carries out the standardisation process to create, issue and implement standards.	Pulled from HMG's definition of standardisation
Third Party Accreditation	This type of accreditation is carried out by an approved third-party organisation assessessing technology, product or service against certain requirements via testing, auditing and certification, etc. Third-party conducting assessment is typically appointed by regulators and qualified in line with relevant standards (i.e. ISO/IEC 17065).	PUBLIC definition adapted from UKAS and BSI

Accreditation Approaches Library: Reader Guide

Page 1



PUBLIC

Medical Laboratory Accreditation

Approach type: Third-party accreditation

Approach Summary

An assessment carried out by UKAS accreditation to ensure **testing services in medical laboratories meet the relevant requirements related to integrity, impartiality and competence,** and the ability to demonstrate that specific testing activities performed in the laboratory are performed within the criteria set out in the specific ISO/IEC 17025 criteria.

Sector	Geography	Accreditation Body	Standards Body
♡	🇬🇧	UKAS	ISO

Necessity: Voluntary

Standards: ISO/IEC 17025

Source(s): Medical Laboratory Accreditation - ISO 15189

Process overview

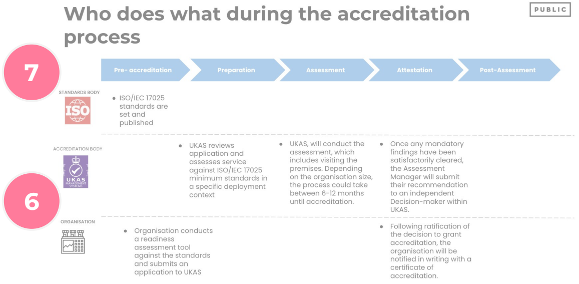
tion	Preparation	Assessment	Attestation	Post-Assessment
Readiness Assessment Tool	Application	On-site assessment	Recommendation	Renewal of accreditation annually
	Documentation review	Inspection	Declaration of conformity	Full reassessment every 4 years
	Pre-assessment	Validation and Verification	Issue of Accreditation Certification	

Key Assessment Criteria

Technical/Non-Technical. On application the following information is requested:

1. Medical laboratory fields
2. Products and materials that are tested
3. Types of examination/technical fields/activities
4. Equipment used
5. Measurement principle and main SOP reference
6. Laboratory location

Page 2

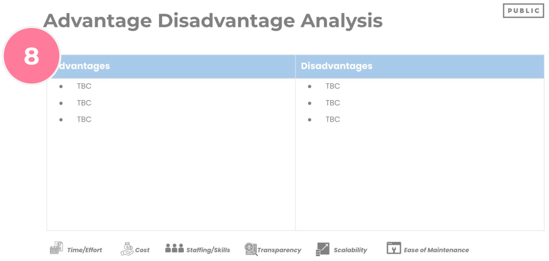


PUBLIC

Who does what during the accreditation process

	Pre- accreditation	Preparation	Assessment	Attestation	Post-Assessment
STANDARDS BODY (ISO)	• ISO/IEC 17025 standards are set and published				
ACCREDITATION BODY (UKAS)		• UKAS reviews application and assesses service against ISO/IEC 17025 minimum standards in a specific deployment context	• UKAS, will conduct the assessment, which includes visiting the premises. Depending on the organisation size, the process could take between 6-12 months until accreditation.	• Once any mandatory findings have been satisfactorily cleared, the Assessment Manager will submit their recommendation to an independent Decision-maker within UKAS.	
ORGANISATION	• Organisation conducts a readiness assessment tool against the standards and submits an application to UKAS			• Following ratification of the decision to grant accreditation, the organisation will be notified in writing with a certificate of accreditation.	

Page 3



PUBLIC

Advantage Disadvantage Analysis

dvantages	Disadvantages
• TBC • TBC • TBC	• TBC • TBC • TBC

Time/Effort *Cost* *Staffing/Skills* *Transparency* *Scalability* *Ease of Maintenance*

1. **Type of approach:** Third party, self-accreditation or mixed approach
2. High-level overview of the approach
3. **Key information:** Sector, geography, accreditation body, standardisation body, applicable standard and whether the accreditation is voluntary or mandatory
4. Accreditation process diagram with main stages and activities
5. Assessment criteria the service or product is evaluated against (usually reflected in the respective standard)

6. Entities involved during the accreditation process
7. Stage of the process and key activity performed by each entity **(Note: to see more detailed information about the process please review long-list of approaches project document)**

8. Advantages and disadvantages of each approach. Analysis based on desk research.

Accreditation Process: Reader Guide

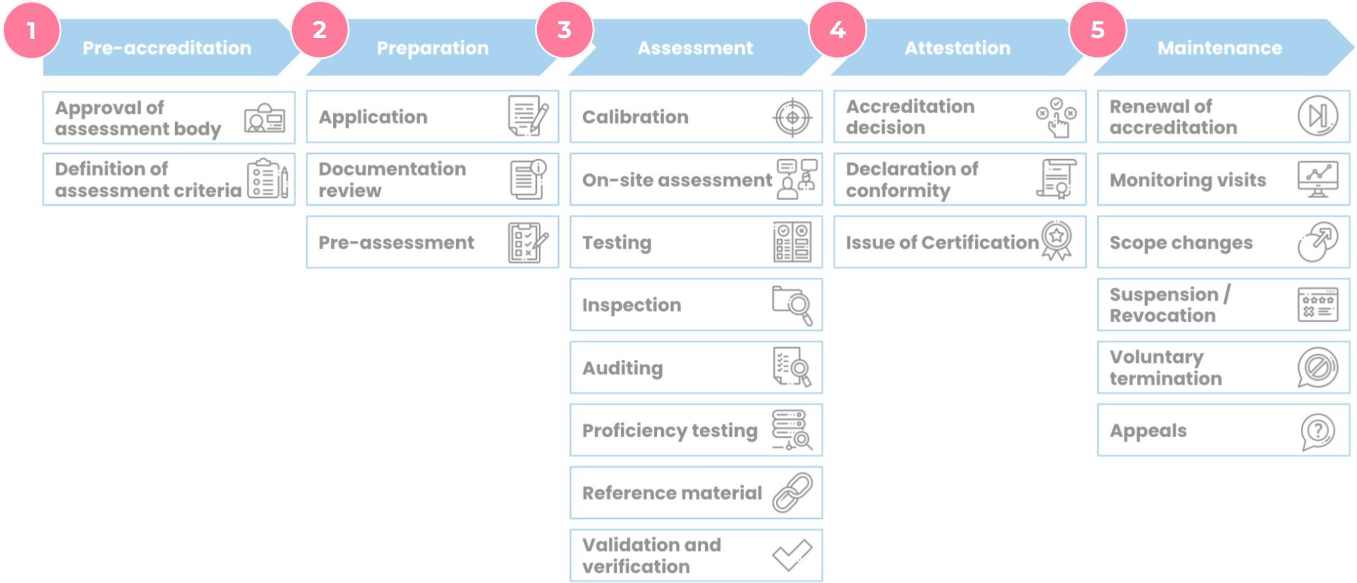
1 Pre-accreditation: Set up and launch of an accreditation scheme

2 Preparation: Activities involved to prepare for compliance

3 Assessment: Activities to assess the conformity to specified requirements

4 Attestation: Activities to convey the decisions and assurance

5 Maintenance: Ongoing assurance of compliance; Review and maintenance of the scheme



1 Pre-accreditation	2 Preparation	3 Assessment	4 Attestation	5 Maintenance
Approval of assessment body	Application	Calibration	Accreditation decision	Renewal of accreditation
Definition of assessment criteria	Documentation review	On-site assessment	Declaration of conformity	Monitoring visits
	Pre-assessment	Testing	Issue of Certification	Scope changes
		Inspection		Suspension / Revocation
		Auditing		Voluntary termination
		Proficiency testing		Appeals
		Reference material		
		Validation and verification		

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DSIT	Growing the artificial intelligence industry in the UK - GOV.UK
EASA	Part-145 | EASA
ENISA	NIS Directive — ENISA
EA	For Regulators - European Accreditation
European Commission	Policy and investment recommendations for trustworthy Artificial Intelligence | Shaping Europe’s digital future
FAA	Supplemental Type Certificates | Federal Aviation Administration
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