

Building training and competence through collaboration: a case study of a centralised training framework in animal research

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Abstract

The Animals (Scientific Procedures) Act 1986 (ASPA) outlines an establishment's responsibilities regarding training and competency management. This is accomplished by appointing a Named Training and Competency Officer (NTCO) who supervises training activities, establishes local standards and maintains precise training records.

While various models for managing training and competency exist we illustrate a case study of the centralised training and competency framework for animal research at the Sainsbury Wellcome Centre. Utilising standardised documentation and digital platforms, trainees, trainers and assessors, known as mentees, mentors and observers, collaborate to ensure mentee competency.

Our centralised training and competency approach relies on standardised documentation, efficient quality assurance processes and a strong team culture between researchers and animal facility staff. By carefully implementing this customised and robust system, we create an environment that supports regulatory compliance while maintaining scientific rigour and high Animal Welfare standards.

Introduction

In 2023, 22.5% of non-compliance incidents reported by the Animals in Science Regulation Unit (ASRU)¹ were attributed to inadequate training and competency. Although this rate by itself does not identify a specific problem nor indicate its scope or depth, it does reveal room for strengthening the training frameworks of licensed facilities. The benefits of improving training can be far-reaching, ranging from prevention of harm to animals; improvements in Welfare, and protecting an establishment's public reputation. Biological research facilities generally implement various control measures within their training and competency practices to reduce the likelihood of non-compliance incidents; however systematic evaluation of these control measures is limited.

The Animals (Scientific Procedures) Act 1986 (ASPA)² dictates through several Standard Conditions, an establishment's obligation to manage training and competency processes at the establishment (PEL), project (PPL), and personal (PIL) licence levels. ASPA mandates that the Establishment Licence Holder (PELh) is “*responsible (...) for making sure that all staff are adequately educated and trained before they work with any protected animals or that they are supervised until*

they are competent”. This is achieved by appointing a Named Training and Competency Officer (NTCO). The NTCO oversees training processes within an establishment, sets local standards and maintains accurate training records thus ensuring regulatory compliance is met.^{3,4}

Briefly*, to equip an NTCO with the essential skills for their role, they receive specialised training from Home Office-accredited professional organisations. This training focuses on identifying the organisation’s training needs, establishing and upholding local standards, developing effective training and competency processes and utilising dependable record-keeping systems. Subsequently, the NTCO puts in place a robust framework for training, supervision and competency assessment that aligns with acceptable practice standards and ensures a consistent approach. In addition to the NTCO, the Named Veterinary Surgeon (NVS) plays a crucial role in the training and competency processes. The NVS collaborates with other named persons, Animal Technologists (ATs) and research scientists to offer specialised training and guidance to personal and project license holders regarding surgical techniques, anaesthesia, analgesia, euthanasia and more (see Figure 1).

(A) An overview of the essential elements within a training framework, covering its purpose, accountability and areas of value. (B) An institution can apply various training and competency strategies to implement its training framework. These strategies may adopt a decentralised approach (top panel – institution A), a

centralised approach (bottom panel – institution C), or a hybrid model (middle panel – institution B). (C) A schematic representation of resources, including platforms and personnel that different approaches might employ. The platform colour variation depicts the variety of platforms used. The personnel for each institution decreases with stronger centralisation. The total number and variation of platforms and personnel decrease as the approach shifts toward more centralised methods.

Additional guidance on developing a training and competency process at the establishment level, including appropriate licensee supervision and competency assessment processes has been widely published over the years by professional bodies within the animal science and care sector.^{4,5,6} Similarly, suitable competency assessment methods such as the direct observation of procedural skills (DOPS) are accessible to NTCOs and staff engaged in training and competency evaluation. Initially introduced in the early 2000s in medical education by the Royal Colleges in the UK, DOPS offer a validated and systematic method for assessing procedural skills through specific criteria⁷. This method has since been adapted and adopted by the laboratory animal science sector to support robust and standardised assessment of technical competence in animal procedures.^{4,8}

The NTCO’s role is crucial for ensuring compliance with ASPA; it involves interpreting published guidance and tailoring it into a workable, context-sensitive process that meets the distinct needs of each organisation. This task necessitates balancing regulatory demands

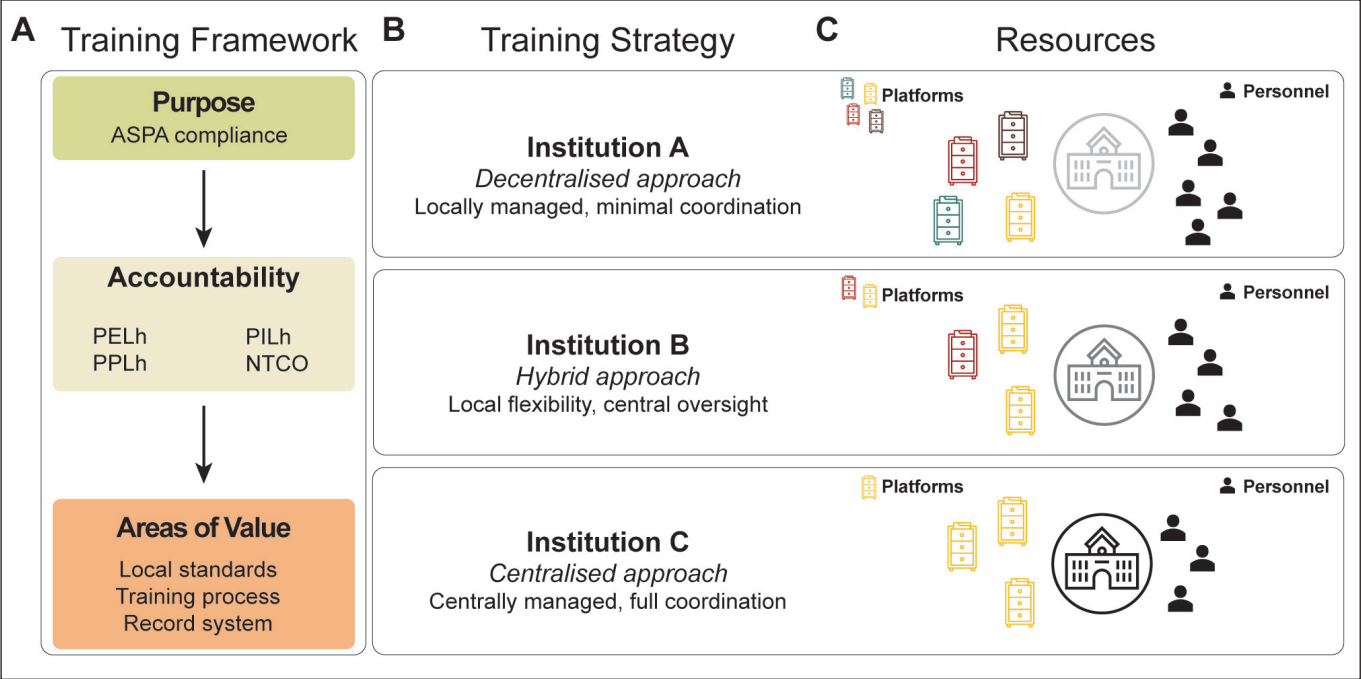


Figure 1. Training and competency strategies.

* **DISCLAIMER:** it is not the aim of this paper to provide a comprehensive review or summary of the legal framework, guidance or courses. It is not intended to be prescriptive and it is recognised that it will not be suitable in all circumstances.

with the institution's specific context and provides clear, evidence-based guidelines in grey areas. For example, a large research facility might prefer a method that promotes consistency across departments. In contrast, a smaller establishment might opt for a model that allows greater flexibility and autonomy for individual teams and works with researchers to develop best practices around new procedures.

In many industries, models for training and competency management – such as decentralised, centralised and hybrid systems – have been extensively researched, adapted and debated to support consistency, efficiency and high standards.^{9,10,11,12} These frameworks are well-established in sectors such as healthcare, education and corporate training, where their implementation continues to evolve in response to organisational needs and emerging good practices.

For this paper, we refer to these three distinct models for managing training and competency at the establishment level drawing on terminology and frameworks commonly used in other sectors (Figure 1B and 1C).

- In decentralised systems, training is managed at the level of individual units such as research groups, facilities, or project licences with minimal coordination across the wider institution. While this approach can be responsive and adaptable to specific research needs, it can result in inconsistencies in standards, documentation and oversight.
- Centralised systems implement institution-wide training procedures and oversight, typically through coordinated mentorship, structured assessment and aligned record-keeping. This model supports consistency, improves transparency and helps mitigate non-compliance risks by embedding shared expectations and quality control mechanisms. However, centralised models are often perceived as excessively bureaucratic and slow to adapt to rapidly evolving research environments.
- Hybrid systems combine elements of both centralised and decentralised systems allowing flexibility at the local level while maintaining central oversight and cohesion. These models balance responsiveness to research contexts with standardised practices and shared tools and can facilitate evidence-based adoption of improved practices.

To our knowledge, while elements of these models may be informally present or intuitively applied within the Animal Technology sector, they have not been systematically researched, explicitly adapted, or consciously implemented as structured frameworks. In our view, this represents a notable gap in the sector. To address this gap, we present a case study of a training and competency framework model and demonstrate its real-world application at the Sainsbury Wellcome Centre (SWC). Our aim is to illustrate how such frameworks can be adapted to the specific needs

of the Animal Technology sector and to contribute to future broader discussions on best practices in training and competency management.

At the SWC we adopt a centralised strategy for our training and competency framework. We offer a clear, consistent and high-quality system utilising standardised DOPS for training and assessment, alongside digital platforms for documentation, communication and record-keeping. We feel that this centralised approach guarantees standardisation aligned with high procedural and Animal Welfare standards while minimising non-compliance risk. By highlighting both its advantages and limitations we strive to provide valuable insights that can inform the evolution of training systems in other institutions, be it through comprehensive centralised frameworks or tailored models that accommodate local needs and capacities.

Supporting resources and technologies

At the SWC we have created a centralised training and competency framework to ensure that all personnel working with animals regardless of role or seniority, are adequately trained and demonstrably competent before undertaking regulated procedures. At the core of this strategy is a structured mentorship model which is enhanced by DOPS and a range of digital platforms (Table 1) that facilitate effective tracking and coordination as well as documentation, assessment and communication of training activities. Access to these platforms is tiered: researchers are granted limited, task-specific access (Figure 2A; top panel), while staff within the Neurobiological Research Facility (NRF) have full administrative access, allowing for real-time oversight and coordination across training workflows (Figure 2A; bottom panel). The NRF team provides multidisciplinary expertise in animal husbandry, housing, welfare and veterinary care; manages innovative research solutions; and oversees compliance with UK Home Office standards.

The success of this approach relies on clearly defined roles and collaborative effort across all levels of the organisation. Within the research groups, Project Licence Holders (PPLhs), and trainers (referred to as Designated Mentors – DMs) are primarily responsible for providing training and supervising the competence development within their teams (Figure 2B). They guarantee that researchers possess the necessary skills and knowledge for ethical and effective engagement with animals. In this model, mentees refer specifically to the researchers who are currently undergoing training.

In the NRF, the mentoring process is coordinated by the NTCO, the Home Office Liaison Contact (HOLC) (referred to as Standards and Licensing Manager – SLM), a group of assessors (referred to as Designated Observers – DOs),

Software	Software Provider	Purpose	Key Personnel Access
Jotform	JotForm, USA	Dedicated digital platform for the creation, standardisation, and secure storage of training and assessment forms, including DOPS	NTCO, NRF Staff
		Traceable, automated and secure distribution of records to mentors, mentees and administrators	
PyRAT	Scionics Computer Innovation GmbH, Germany	Digital platform for managing animal colonies, breeding, licensing	All staff
		Tracking and management of staff competency records	
Slack	Slack Technologies LLC, USA	Dedicated digital platform that facilitates secure communication and coordination between mentors, mentees and observers through role-restricted access channels	All staff
		Scheduling observation and re-observation requests	
Microsoft Excel	Microsoft, USA	Tracking users' competency status through semi-automated processes and interactive visualisations	NTCO, NRF Staff

Table 1: Overview of digital tools used in the SWC's training and competency processes.

and the NVS (Figure 2B). These individuals are tasked with upholding training standards, performing competency assessments and ensuring adherence to internal and regulatory requirements. Support staff, particularly ATs play a crucial role in facilitating daily mentoring, such as for Schedule 1 methods of humane killing and in providing technical and procedural guidance. Notably, over half of all NRF staff are directly engaged in training and competency-related activities, reflecting a department-wide commitment to fostering a skilled, responsible animal research environment (Figure 2).

Platforms (highlighted in yellow) and personnel (highlighted in black and blue) contributing to SWC's training and competency framework. (A) The platforms include DOPS, Jotform, PyRAT, and Slack, providing restricted access for researchers (top panel) and full access for NRF staff (bottom panel). (B) Bar chart, the number of personnel involved in training and competency, specifically PPLhs and DMs for researchers, as well as NTCO, SLM, ATs (supporting daily training) and DOs/ NVS for NRF, are represented in black. Those receiving support (mentees) are shown in blue.

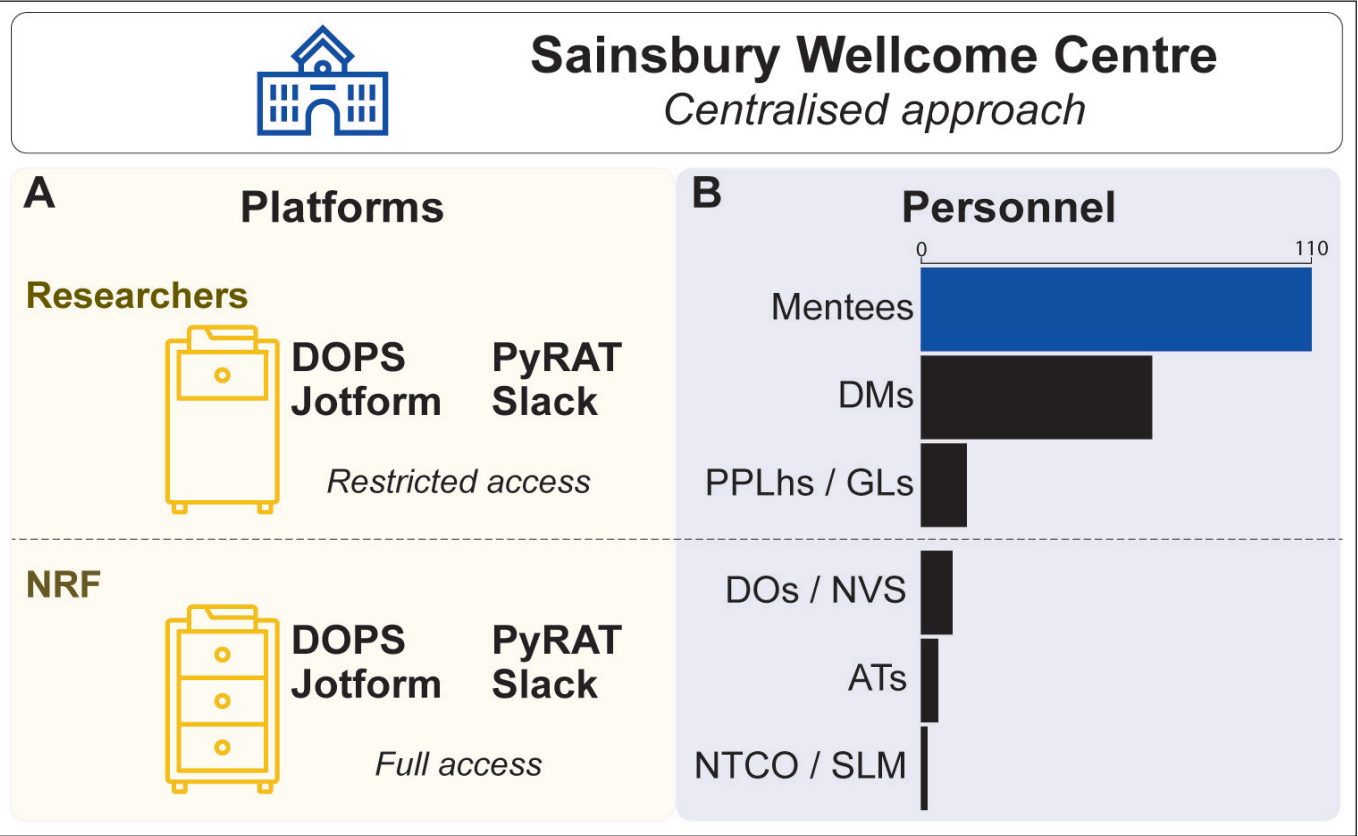
NRF: Neurobiological Research Facility; DOPS: direct observation of procedural skill; DMs: designated mentors; PPLh: project licence holder; GLs: group leaders; DOs: designated observers; NVS: named veterinary surgeon; ATs: Animal Technologists; NTCO: named training and competency officer; SLM: standard and licensing manager.

SWC centralised training and competency framework

Competency mentoring and mentor selection

A structured mentoring programme facilitates competency development at the SWC, where a peer mentor supports each mentee during practical sessions (Figure 3A). The mentoring begins once a mentee is paired with their DM, who conducts a series of hands-on mentoring sessions while tracking progress using standardised Jotform mentoring records. Once both the DM and mentee agree that the mentee's procedural skills align with expectations the mentee can request a formal competency assessment referred to as observation, through Slack (Figure 3A).

Regardless of mentoring involvement, DOs – senior NRF staff who have completed Accredited Assessor training and obtained NTCO approval – conduct a direct observation of procedural skills (DOPS). Using a 'meets expectations/below expectations' scoring system, the DO documents outcomes in Jotform-integrated DOPS and provides targeted feedback. Upon successful demonstration, the DO awards a valid competency for three years, after which re-observation is requested via Slack and conducted by a DO. Completed mentoring and (re-)observation records are kept in Jotform and mirrored in PyRAT (Figure 3A).



Quality assurance and system standardisation

To ensure consistent assessment both DMs and DOs utilise standardised DOPS templates generated via Jotform. The templates are obtained from the LASA repository¹³ or created collaboratively by the NVS, named animal care and welfare officer (NACWO), NTCO, and ATs, ensuring adherence to good practices. The NRF centrally manages the digital infrastructure (Table 1). All NRF personnel involved in mentoring, observation and quality assurance have full administrative access to these platforms, while researchers have restricted permissions tailored to their roles to avoid accidental alterations (Figure 2).

The NTCO, together with the SLM, conducts monthly audits of both DOPS records and PyRAT competency entries (Figure 3C) to ensure adherence to procedural standards. Oversight is supported by an Excel-based competency matrix maintained by the NTCO providing an at-a-glance view of institute-wide staff competencies through a traffic light system:

- **Green** – competency current
- **Amber** – competency within one month of expiry
- **Red** – competency expired

Ultimately PILs participate in annual meetings to remain informed on matters relevant to their training and competency, supporting the NTCO's annual competency evaluation of all research personnel. This evaluation examines changing procedural needs and guides the development of customised action plans for acquiring new skills or prompts re-observation ensuring that individual competencies align with the Centre's scientific goals and regulatory responsibilities.

Discussion

To comply with ASPA, establishments must deliver training and competency systems that are robust, tailored and adequately resourced. These systems are typically facilitated by the NTCO who may adopt a centralised, decentralised or hybrid approach depending on the specific needs and structure of the establishment. At the SWC we have implemented a centralised framework to support our training and competency process structured around the roles of DMs and DOs. This system incorporates standardised DOPS online platforms and detailed digital record-keeping to ensure procedural consistency and high Animal Welfare standards.

Strengths and limitations of centralised models

The centralised approach adopted at SWC offers multiple advantages:

- Standardised training processes and documentation, ensuring uniform quality across all procedures.
- Streamlined quality assurance and oversight, with easily auditable records and clear accountability.
- Enhanced institutional resilience against non-compliance risks by centralising regulatory tracking and licence management.

However, centralised systems entail practical considerations. SWC's approach depends on paid platforms such as Slack, PyRAT, and Jotform which might not be viable for smaller or resource-limited facilities. However free or low-cost alternatives are available allowing a centralised framework to be widely accessible.

A second consideration is the size of the units. Centralisation is especially beneficial for small-to-medium research units like the SWC. In contrast larger organisations may find a hub-and-spoke model more advantageous allowing independent sub-units to handle local training while following a central standard and oversight.

While a centralised model may appear bureaucratic and slow its organisation and clarity become the foundation for rapid adaptability. By codifying every step – from mentoring and DOPS templates to digital workflows in Jotform, Slack and PyRAT – the SWC creates a comprehensive process map that is easy to update. When project-specific demands or updated regulatory guidance arise the documented procedures and competency matrix allow stakeholders (NTCO, DMs, DOs, and IT support) to swiftly identify affected steps, revise training content or assessment criteria, and implement changes across the system.

This agility, however, depends on the same investments that underpin centralisation:

- Assessor training, which ensures that DMs and DOs not only understand existing protocols but can also co-develop new ones.
- Robust digital infrastructure, which supports version control, targeted notifications, and modular updates across platforms.
- Change-management strategies, which engage end-users early, gather feedback and provide guidance.

Fostering compliance and resilience through a culture of collaboration

The SWC's training framework includes administrative strategies to minimise non-compliance risks. The NTCO and SLM regularly perform quality assurance checks on training records. Additionally, the NTCO in collaboration with the PILs conducts an annual system audit to assess all animal user competencies at the establishment, shaping an action plan that addresses the evolving needs of license holders.

Additionally, the SWC AWERB reviews the training and competency framework annually during which the NTCO presents key performance indicators to reinforce continuous improvement. Finally to maintain consistency in the use of standardised DOPS and documentation, NRF staff alone have full access to Jotform platforms.

Maintaining high Animal Welfare and scientific integrity standards requires more than administrative management; it depends on building and nurturing a culture that prioritises and invests in training. By recognising training as a key institutional focus, organisations ensure that technical proficiency, regulatory adherence and Animal Welfare are viewed as interconnected and evolving responsibilities. Success in these areas is equally contingent upon building robust, cooperative relationships with the research community. Establishments can bridge the gap between regulatory requirements and the evolving nature of research. Encouraging active dialogue, shared responsibility and a common understanding of the importance of training allows researchers to see compliance not as a burden but as a shared obligation. This teamwork cultivates a research atmosphere where high standards are embraced collectively, ensuring that progress in Animal Welfare and scientific excellence occurs simultaneously.

Conclusion

A robust and thoughtfully designed training and competency framework is not merely a regulatory requirement under ASPA but a foundation for high-quality research and enhanced Animal Welfare. By leveraging structured models and insights from various sectors, the laboratory animal science community can strengthen its practices, promote continuous improvement and increase public confidence in its dedication to responsible science.

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