NTT DaTa

Trusted Research Environment (TRE)

Making research secure and accessible

Contents

A Growing Challenge

The healthcare sector is changing fast, and increased demand is driving greater focus on developing insight-driven patient care pathways and personalised healthcare. To empower this focus, we need to maximise the ethical and safe use of Real-World Patient Data. The challenges:

- Lack of trusted shared development spaces, where researchers, healthcare professionals and academics can build data-driven solutions.
- Growing public concerns about data security and ethics.
- Regulations that are tight and getting tougher, with strong frameworks across all major regulatory areas.
- General lack of understanding relating to effective use of real-world data and the technologies needed to support these efforts.

The industry is still in its infancy, when it comes to safe and efficient use of patient data for research, but is now becoming more mature. Industrywide thought leadership, backed by common standards, based on proven models and technologies are driving the industry forward

> " NTT DATA is at the heart of data-driven healthcare innovation through its partnerships with healthcare providers, government bodies and technology leaders across the world.

Trusted Research Environment (TRE)

NTT DATA's Trusted Research Environment (TRE) offers rapid, secure access to research environments and data on the Microsoft Azure cloud platform. NTT DATA's service provides the speed and simplicity that comes from building on a proven, stable, secure platform, with the ideal combination of agility and customization.

Building the Right Solution

TRE is customised, based on Microsoft's Trusted Research Environment code. It includes accelerators to support rapid deployment and configuration of your own bespoke Secure Data Environment. Our white label, Azure Application Portal offers researchers and administrators:

- Creation, access and orchestration tools for virtual environments.
- Out of the box workspace and workstation configuration.
- Baseline tools such as R, Python and OHDSI Atlas as standard.

All with the ability to customise these templates further to meet your own specific needs and objectives.

> " Our White Labelled Secure Data Environment (SDE) gives you the tools you need to provide a professional experience to your single study and multi study research customers.

Key Features

The platform includes:

Secure, managed access and authentication, ensuring fast onboarding, rapid identification of security issues and intuitive working, through:

- Federated access using Active Directory.
- Customisable Terms & Conditions.
- Setting specific IAM rules for your collaborative space.

Agile and collaborative workspaces, ensuring that your workspaces are suitable for high performance, results-focused collaborative working.

- Access for named individuals to project-based workspaces.
- Based on clear and agreed rules.
- Supported by configuration of workspace-based services, including Gitea, Atlas or Guacamole.
- Creation and management of Virtual Machines.

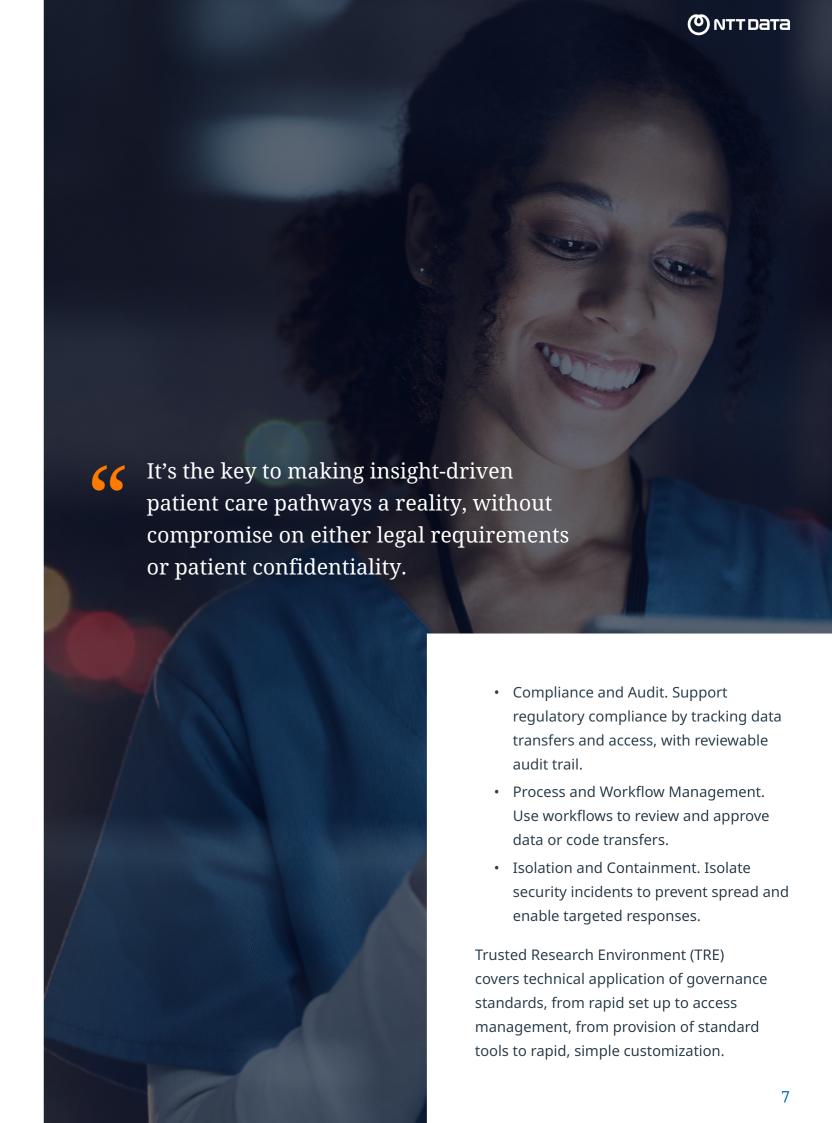**Workstations**, enabling rapid set up and fast start.

- Provide and manage dedicated workstations with a selection of analytics tooling common to data science practice (R, STATA, Python).

Secure Data Environment (SDE) Administration, making it simple to manage and govern collaborative environments to fit joint objectives.

- Create and securely management workstations.
- Manage Airlock requests.
- Provide access to cost reporting.
- Management Reporting and Insight

Airlock, ensuring the environment meets all regulatory requirements, giving participants confidence in security, privacy and data integrity. We focus on the following activities:

- Controlled Access. Manage secure environment access via authentication and validation.
- Threat Detection and Prevention. Monitor data flow to identify and block potential threats like malware.
- Data Leakage Prevention. Prevent unauthorized transmission of sensitive information, protecting against data breaches.

> " It's the key to making insight-driven patient care pathways a reality, without compromise on either legal requirements or patient confidentiality.

- Compliance and Audit. Support regulatory compliance by tracking data transfers and access, with reviewable audit trail.
- Process and Workflow Management. Use workflows to review and approve data or code transfers.
- Isolation and Containment. Isolate security incidents to prevent spread and enable targeted responses.

Trusted Research Environment (TRE) covers technical application of governance standards, from rapid set up to access management, from provision of standard tools to rapid, simple customization.

Unlocking the Benefits

The drive to create Secure Data Environments unites every stakeholder in the wider healthcare economy.

- Providers, to deliver better outcomes in societies where long-term conditions are more common, expectations are high but budgets are under pressure.
- Pharmaceutical companies, to identify effective treatments for accurate targeting.
- Societies, for whom public health is the single most important indicator for prosperity and security.
- Academic innovators, seeking new ways to make personalised care a reality.

They all share the same need to work collaboratively in an environment that fosters sharing of rich data and joint working, with no compromise to data integrity.

TRE solution combines the known benefits of Microsoft Azure with the built-in benefits of our own unique platform approach:
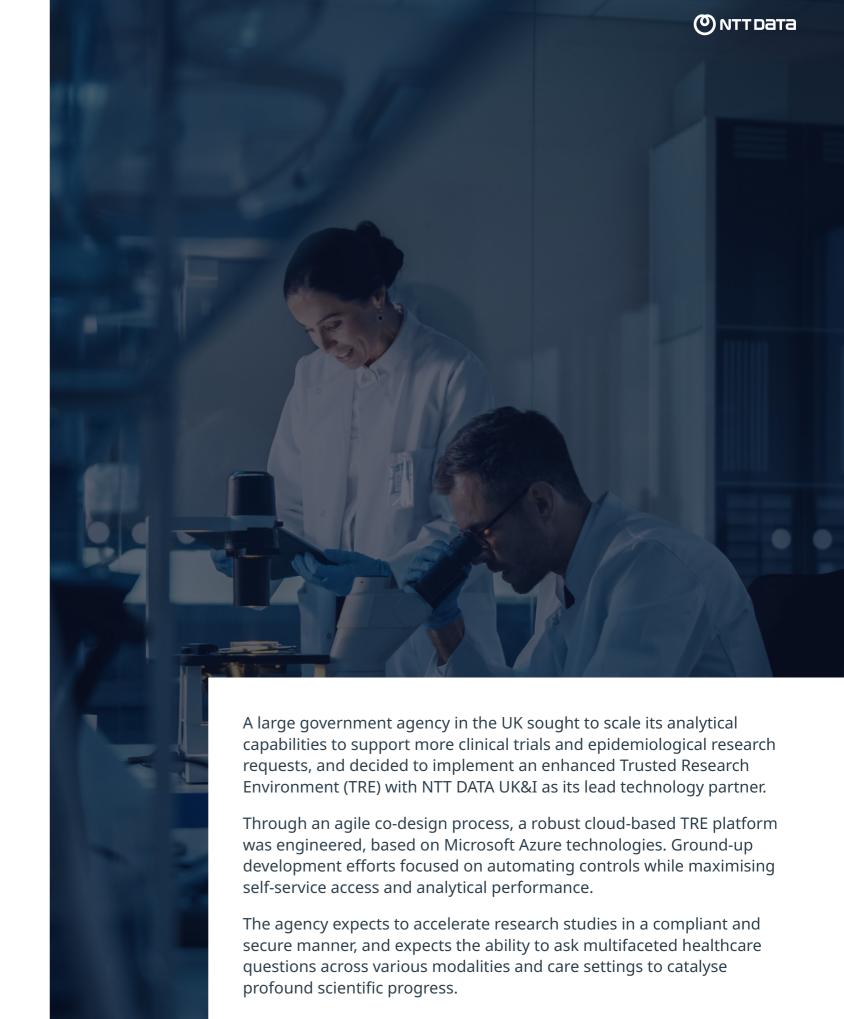
- Secure Collaboration. We open access to collaborative workers, ensuring risk-free data sharing among authorized users, with reduced data transfer to avoid leakage.
- Scalability and Flexibility. The platform is scalable by design, so it can adapt to growing data and changing research needs without disruption or new engineering.
- Innovation and Insights. We recognise that innovation is the key to secure collaborative research, and have designed our solution to enable safe research that can lead to new discoveries.

Benefits of Azure

NTT DATA is a global platinum partner of Microsoft and has used the Azure cloud platform since its inception. We committed our Trusted Research Environment activity to MS Azure due to the added value Azure brings, including assured compliance with key regulations in all major geographies.

- General Data Protection Regulation (GDPR): Azure facilitates compliance with GDPR, providing tools and documentation to help protect personal data and ensure privacy.
- Health Insurance Portability and Accountability Act (HIPAA): For healthcare applications, Azure offers specific features to safeguard patient information, supporting organizations in meeting HIPAA requirements.
- Federal Risk and Authorization Management Program (FedRAMP): Azure is certified under FedRAMP, meeting the strict security criteria required for processing U.S. federal government data.
- ISO/IEC 27001: Compliance with this international standard indicates Azure's commitment to managing information security systematically.

Researchers have the benefit of knowing that Azure already meets care standards as a matter of basic design.

A large government agency in the UK sought to scale its analytical capabilities to support more clinical trials and epidemiological research requests, and decided to implement an enhanced Trusted Research Environment (TRE) with NTT DATA UK&I as its lead technology partner.

Through an agile co-design process, a robust cloud-based TRE platform was engineered, based on Microsoft Azure technologies. Ground-up development efforts focused on automating controls while maximising self-service access and analytical performance.

The agency expects to accelerate research studies in a compliant and secure manner, and expects the ability to ask multifaceted healthcare questions across various modalities and care settings to catalyse profound scientific progress.

Why NTT DATA?

NTT DATA is committed to healthcare in the widest sense, worldwide. We are active in:

- Helping create the secure research framework across the European Union, as a trusted partner to the European Commission.
- Implementing advanced concepts in remote patient monitoring, helping to develop less intrusive and costly forms of healthcare delivery.
- Pioneering uses of AI in targeted pharmaceutical applications, with proven use cases in this field.

We are a trusted partner to NHS England, arm's length bodies and individual trusts across the country, where our work in delivering trusted, secure environments is well established. Because we work across the entire healthcare research ecosystem, we have a more rounded view of the different stakeholders in healthcare than most technology players.

Finally, as part of the wider NTT Group, we share in a research budget of more than $3 billion per annum, dedicated to developing innovative concepts and solutions. For partners in the UK NHS, we understand the funding model, the issues and pressures, how different interest groups work, and we support them as a committed, long-established industry insider. We strongly support the 5 Safes:

- Safe people, with a relentless focus on the wellbeing of everyone involved.
- Safe projects, ensuring that every activity is lawful, compliant and managed to the highest standards of care.
- Safe data, allowing no compromises on patient privacy and the integrity of personal information.
- Safe settings, establishing strong governance and mission guidelines.
- Safe outputs, delivering materials and strategies that can be implemented at once with no risk to any participant.

Our Trusted Research Environment (TRE) solution is designed and engineered for fast onboarding; with technology infrastructure built for speed and responsiveness; workspaces that are both highly flexible and meticulously audited; high levels of automation and scalability; with support tools, including exploration dashboards to enable easier collaboration; and provides Azure based industry leading encryption, which conform to the latest ISO security standards.

> " Deep, efficient collaborative working is now the norm, as we explore ways to build insight-driven patient care pathways. The Azure TRE is the most flexible environment available, and NTT DATA will unlock its full potential to deliver for you- now.