

An overview of System C's G-Cloud service for CareFlow Artificial Intelligence (AI)

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Version: Final

Date: 30 January 2026

Classification: COMMERCIAL IN CONFIDENCE

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1 An overview of System C's AI solution

1.1 Product description

System C is the UK's only dedicated provider of software solutions for Healthcare, Social Care, and Education. With unrivalled expertise, a commitment to transformation, and future focussed, Artificial Intelligence (AI)-powered innovation, we partner with organisations to improve outcomes and enhance community wellbeing.

CareFlow AI is transforming healthcare by improving outcomes, streamlining services, and supporting clinicians on the front line. Leveraging ambient voice technology and deep integration with the CareFlow Electronic Patient Record (EPR), it automates workflows and documentation – reducing cognitive load and freeing time for patient care.

Function	Description
CareFlow AI	
CareFlow Artificial Intelligence (AI)	We are putting AI innovation at the heart of healthcare, empowering professionals to focus on what matters most: patients. CareFlow AI is transforming clinical workflows by reducing manual tasks, improving decision-making, and enabling faster, safer communication across care settings. This means more time for patient care and better outcomes. CareFlow Ambient AI Consultations uses advanced voice technology to capture clinician-patient conversations in real time, generating accurate documentation and clinic letters before the patient leaves the building. This reduces cognitive load, enhances patient safety, and supports compassionate, efficient care. With seamless integration into CareFlow EPR, clinical documentation, outcoming, and direct coding workflows can be automated – streamlining services and supporting clinicians on the front line.

1.2 System C's AI principles

System C's AI strategy is built on delivering **cumulative, complementary capabilities** that progressively enhance clinical workflows across our portfolio of healthcare systems. Unlike point solutions that operate in isolation, our AI modules are designed to work together, creating compounding value for NHS organisations.

Our AI Principles:

- **Purposeful AI:** Every capability serves a clear clinical or operational purpose, delivering measurable benefits in productivity, quality, and time savings.
- **Ethical AI:** Systems are transparent, accountable, and designed to support fair and equitable care delivery.
- **Human First AI:** AI augments human expertise rather than replacing it; clinicians remain in control with mandatory review and authorisation.

1.3 Value proposition

Our AI portfolio delivers progressive value through five complementary capability layers:

1. **Clinical documentation:** Through a process of 'summarisation' our AI processes

ambient voice capture and existing content to populate clinical notes, complete forms and templates, generate letters, and reduce administrative burden.

2. **Clinical coding:** Automatically codes clinical outcomes and findings (i.e., Systematized Nomenclature of Medicine - Clinical Terms (SNOMED CT), International Classification of Diseases – tenth revision (ICD-10), and Office of Population Censuses and Surveys Classification of Interventions and Procedures, version 4 (OPCS-4)), improving coding accuracy, supporting revenue capture, and enabling better analytics.
3. **Workflow actions:** Identifies and creates 'actions' to automate care co-ordination, ensuring decisions are enacted immediately and reduce manual data entry and form completion. For example, extracting and creating tasks automatically, identifying investigation requests to generate lab orders for approval or preparing prescription entries as requested.
4. **Clinical decision support (future development):** Suggests additional considerations, identifies potential care gaps, highlights relevant guidelines, and augments clinical reasoning without replacing professional judgment.
5. **Analytics and insights:** Leverages aggregated data to identify patterns across populations, surface service improvement opportunities, and provide quality and safety insights.

1.3.1 Progressive value delivery:

- Early value realisation from Day 1 with immediate productivity gains.
- Each capability builds on previous foundations without disrupting workflows.
- Technical infrastructure re-used and enhanced across capability layers.
- Risk mitigation through phased introduction of increasing complexity.
- Compounding benefits as better documentation enables better coding, which enables better decision support.

1.3.2 Deep bi-directional EPR integration

System C's ownership of CareFlow EPR and other systems of record enables **deep bi-directional integration** that competitors cannot match:

- **Write-back capability:** Directly update structured data fields in EPR systems, not just free-text notes.
- **Workflow completion:** Trigger system actions and complete entire workflows automatically.
- **Data integrity:** Maintain clinical safety within existing governance frameworks.
- **Seamless experience:** Embedded within existing workflows with Single Sign-On (SSO), no separate logins or context switching.

Benefits of deep integration:

- Greater productivity gains through complete workflow automation.
- Higher quality outcomes via structured data entry with validation.
- Increased time savings by eliminating re-keying across systems.
- Lower adoption barriers through familiar, embedded interfaces.
- Superior clinical context from longitudinal patient data across care settings.

PortfolioWide data access

Data aggregation across our portfolio, including CareFlow EPR and its component modules, BadgerNet Maternity and Neonatal, Liquidlogic Social Care, and other products, provides comprehensive context enabling:

- Joined-up care across settings.
- Better clinical insights from complete patient histories.
- More effective decision-making with full context.
- A unified view of the person receiving care.

1.3.3 Ambient voice as a universal interface

Speech-to-text technology transforms spoken interactions into digital records, providing the information for AI to action, summarise or complete structured documentation. The spoken input scenarios may include:

- Transcriptions of clinician-patient consultations during care encounters.
- Direct clinical dictation for direct notetaking.
- Multi-disciplinary team meetings and care planning.

This ambient approach streamlines documentation, improves data quality, and frees professionals to spend more time with patients rather than keyboards.

1.4 Our other solutions

Please see our separate submissions for standalone CareFlow products on the Digital Marketplace, these include:

- CareFlow Patient Administration System (PAS).
- CareFlow EPR.
- CareFlow Emergency Care.
- CareFlow Clinicals.
- CareFlow Electronic Prescribing and Medicines Administration (EPMA).
- CareFlow Pharmacy.
- ChemoCare.
- BadgerNet Maternity, Neonatal, and Paediatrics.
- CarePlus (Child Health).

1.5 Standards

System C solutions are purpose-built for the UK Health and Social Care sectors and fully comply with NHS standards and best practice guidelines, including NHS Information Security Standards and Information Governance standards (e.g., NHS IM&T Security Manual, the NHS Confidentiality Code of Practice, and Caldicott Principles).

Our credentials include:

- **ISO certifications:** ISO 9001 for Quality Management and ISO/IEC 27001 for Information Security across all business functions.
- **NHS compliance:** Data Security and Protection Toolkit (DSPT) compliance, plus Cyber Essentials and Cyber Essentials Plus accreditation.

- **Sustainability commitment:** Carbon Reduction Plan published annually since 2022 and participation in NHS England's Evergreen Sustainable Supplier Assessment since 2023.

In summary, System C combines rigorous compliance with a strong commitment to sustainability, ensuring secure, high-quality solutions for the NHS and Social Care.

1.5.1 Medical device regulatory compliance

Our AI solutions are developed and maintained in accordance with UK Medical Device Regulations:

- **Medicines and Healthcare products Regulatory Agency (MHRA) registration:** all AI modules requiring registration are submitted to the MHRA with comprehensive technical documentation.
- **Classification approach:** systematic assessment using MHRA guidance for Software as a Medical Device (SaMD) and AI as a Medical Device (AIaMD).
- **Technical file maintenance:** comprehensive documentation including intended use, risk analysis, clinical evaluation, and post-market surveillance.
- **Ongoing compliance:** continuous monitoring and reporting of adverse events, periodic safety updates, and re-certification when significant changes occur.

1.5.2 Clinical safety standards

DCB0129 compliance: clinical risk management is applied systematically:

- Clinical Safety Officer oversight throughout development and deployment.
- Hazard identification and risk assessment using ISO 14971 methodology.
- Hazard log maintenance and ongoing risk review.
- Safety case development and approval.
- Post-deployment monitoring and incident reporting.

1.5.3 Development standards:

The software lifecycle is aligned with IEC 62304 requirements, ensuring:

- Systematic requirements management.
- Design controls and verification.
- Configuration management and version control.
- Problem resolution processes.

1.5.4 Human-in-the-loop design

All AI capabilities are designed with mandatory clinician oversight:

- **No autonomous decisions:** AI provides suggestions and drafts; clinicians make all clinical decisions.
- **Mandatory review:** All AI-generated content requires explicit clinician review and authorisation before use.
- **Edit capability:** Clinicians can modify, reject, or regenerate any AI output.
- **Audit trail:** Complete immutable logging of all AI interactions, content generations, and

clinician actions.

- **Explainability:** Where possible, AI suggestions include supporting context from source data.

1.5.5 Clinical validation methodology

System C employs systematic validation approaches:

- **Synthetic data testing:** Proprietary platforms generate realistic clinical scenarios across specialties for systematic evaluation.
- **Clinical reviewer panels:** Qualified healthcare professionals assess AI outputs against clinical standards.
- **Specialty-specific validation:** Testing across multiple clinical contexts to ensure appropriateness.
- **Continuous monitoring:** Ongoing evaluation of AI performance in live deployments with feedback loops.
- **Quality metrics:** Systematic measurement of accuracy, completeness, and clinical appropriateness.

1.5.6 Safety monitoring and continuous improvement

Post-market surveillance: active monitoring including:

- Structured feedback collection from clinical users.
- Analysis of edge cases and errors.
- Performance metric tracking.
- Adverse event reporting and investigation.

Continuous enhancement: regular review and refinement:

- Periodic re-validation with updated clinical standards.
- AI model updates with safety regression testing.
- Clinical Safety Officer review of all significant changes.
- Version-controlled releases with documented safety assessment.

2 Implementation

2.1 Configuration

System C has developed a standardised, collaborative, and iterative approach to configuration, designed to ensure the solution meets customer needs and maximises benefits. This approach includes:

- **Business process alignment:** Supporting customers to align or realign workflows to optimise outcomes.
- **Compliance:** Ensuring all configurations meet NHS data standards and data dictionaries.
- **Access control:** Setting up Role-Based Access Control (RBAC) rights for individuals or groups to ensure permissions match roles and sensitive data remains secure.

2.2 Deployment

System C's deployment methodology is designed for a safe, controlled, and predictable go-live with minimal disruption to patients and staff. Key principles of our approach include:

- **Joint planning:** System C and Trust teams work together on an integrated plan, fostering transparency and early risk management.
- **Clinical engagement:** Essential for success; we collaborate closely with clinicians throughout.
- **Flexibility:** Our methodology is pragmatic and adaptable to Trust-specific needs.
- **Remote capability:** We pioneered remote deployments during COVID-19, completing three fully remote EPR go-lives.

The benefits of our deployment methodology are:

- Reduced risk through structured stage-gate readiness criteria.
- Smooth transition from go-live to Business as Usual (BAU).
- Fully trained staff and a solution that meets clinical and organisational requirements.

2.3 Training

System C partners with the Trust's Training Team to provide guidance, training, and support. Our standard approach includes:

- **Train-the-Trainer model:** Working closely with the Trust's Training Team to plan and deliver training.
- **Comprehensive training materials:** Covering all aspects of the deployed solution.

2.4 Testing and acceptance

Testing is critical to success, and System C adopts a structured, collaborative approach tailored to the solution being implemented. We assist the Trust by providing:

- **Testing collateral:** Including a Test Strategy, Test Plans, and Test Reports.
- **Guidance and support:** Ensuring effective testing is undertaken to maximise solution benefits.