

Place management using GS1 standards

A practical guide to using GS1 Global Location Numbers (GLNs) for the NHS



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Executive summary

This document provides practical guidance for NHS organisations on implementing place management using GS1 standards. Its focus is the consistent use of the Global Location Number (GLN) to identify physical locations and relevant organisational functions in a standardised and interoperable way.

Standardised place identification improves traceability, supports interoperability between systems and helps information flow more reliably across organisations. In practice, this can strengthen patient safety, reduce manual work, improve operational control and provide a stronger foundation for Scan4Safety and other data-led improvement programmes across the NHS.

At the centre of this approach is the GLN, a globally unique identifier that allows locations and functions to be recorded consistently and referenced accurately across systems. When supported by GS1-compliant barcoding and scanning, GLNs enable more reliable data capture at the point of activity, helping organisations reduce ambiguity, improve data quality and make better-informed decisions.

The guidance sets out a structured approach to implementation, including planning and governance, stakeholder responsibilities, identifying physical and function GLNs, updating estate information and drawings, assigning identifiers, placing physical labels and reviewing the systems that need to identify, capture or share this information.

Used effectively, this guidance will help organisations to:

- Create a consistent approach to identifying physical locations and organisational functions
- Improve traceability and support the sharing of location data across systems and organisations
- Provide a stronger foundation for interoperable workflows and future Scan4Safety use cases
- Support safer, more efficient services and help meet relevant NHS policy and regulatory requirements

Overall, this document is intended to help NHS organisations move from fragmented local approaches to a more standardised model of place management, enabling safer care, better operational visibility and a more connected health system.

Refer to the following sections to get started

Section 2 – Planning and preparing (pages 5-8)

Section 3 – Implementation (pages 9-12)

Section 4 – Benefits and outcomes (pages 12-13)

Section 5 – Appendices (pages 14-24)



1. Introduction

1.1 Purpose

The purpose of this document is to provide healthcare organisations with the information required to successfully embed place management to improve traceability, operational efficiency and both staff and patient safety, by leveraging standardised identification and data capture methods. This document is based on recommendations from NHS organisations who have successfully embedded the Global Location Number (GLN).

This document supports healthcare providers and suppliers in ensuring that:

- Solutions used across estates and facilities are GS1 compliant
- Improves traceability across the NHS estate
- Provides a standardised identifier which can be used and shared by all relevant systems
- Sets the foundations for place management to complement Scan4Safety use cases such as inventory management, point of care scanning, asset management, blood management, bed management and medicines management

Scan4Safety

Scan4Safety is a national NHS programme that uses globally recognised GS1 barcode standards to uniquely identify patients, products, places and procedures, enabling safer care, greater efficiency and more accurate, interoperable data across healthcare.

Scan4Safety works by using globally recognised GS1 standards to capture standardised data across the 'core enablers':

- Patient (who received the care)
- Product (what was used)
- Place (where it happened)

2. Getting started – planning and preparing

2.1 Assign areas of responsibility

Identify an SRO (senior responsible officer) to lead Scan4Safety across estates and facilities. This role will have overall responsibility for location management involving both the mapping and placement of physical labels across the estate liaising with relevant key stakeholders across the organisation. It is essential a stakeholder map is agreed to understand all impacted parties.

- Capital planning/estates – Inform the CAD team / CAFM manager of any changes across the NHS estate including any alterations to the layout
- CAD team/CAFM Manager – Ensure floor plans are up to date and accurate and assign GLNs to physical locations
- PFI manager – Ensure processes are clear where Private Finance Initiative (PFI) schemes are identified
- Estates – Appoint staff members to attach the physical GLN labels on each site, building, floor, room and/or space
- Procurement/finance – Appoint staff member to assign GLNs to functions i.e. requisition points and assign a GLN within relevant systems such as purchase-to-pay or inventory management systems

Define a high-level project plan to communicate with key stakeholders across the multiple divisions.

- Identify an estates management system capable of capturing GLNs
- Update internal policy and procedure / standard operating procedure (SOP) documents
- Undertake audits to identify physical and function GLNs
- Update CAD drawings
- Obtain organisation GS1 Company Prefix (GCP) from GS1 UK
- Assign GLNs to physical locations and function GLNs
- Placement of physical labels
- Identify relevant systems impacted by GLNs
- Review further use cases

Clear communication is essential to all teams providing awareness on the impact when implementing GLNs across the organisation and staff training to be provided where relevant.

Key learnings and advice

- **SRO** – this is a critical role to ensure all key stakeholders are aligned and the programme of work is successfully implemented
- **Expectations** – manage expectations and provide awareness sessions on why the organisation is implementing GLNs, the benefits and how long it will take to implement
- **Stakeholders** – conduct a stakeholder analysis at the outset, as responsibilities for GLN assignment and management can vary significantly between trusts
- **Director of estates and facilities** – director involvement is crucial for driving the initiative forward
- **Project board** – ensure a project board is in place to clarify roles and responsibilities, maintain accountability and provide the authority to progress tasks

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[Refer to steps 4, 5 and 12](#)

2.2 Update standard operating procedures (SOPs)

It is integral that the governance on GCP management is in place to ensure that GS1 Identification Keys generated from the GCP are unique. Allocation of GS1 Identification Keys (e.g. GLN, GTIN, GIAI, GRAI) based on the healthcare provider organisation's GCPs should be done at the healthcare provider organisation level and the sites will inherit the GS1 Identification Keys.

Ensure standard operating procedures are updated and reflect the new changes in place across both systems and people for the mapping and placement of GLNs. Include regular reviews and provide training and awareness sessions where relevant. The SOP must reference the changes in practice for both physical and function GLNs.

An SOP on the management of GS1 Identification Keys for place management needs to be created (if it is not already available) and should include the following:

- Specified GS1 Identification Key(s) used to identify locations at the healthcare provider organisation and the GCP from which they are generated
- Describes the format of the GS1 Identification Key defined by the healthcare provider organisation in compliance with GS1 standards and supported by systems
- Describes the steps taken for effective GS1 Identification Key management to ensure the Keys are not duplicated.

Steps include:

- Generating the GS1 Identification Key in the correct format
 - Allocating the GS1 Identification Key to the location (physical and function)
 - Storing the GS1 Identification Key in the agreed GS1-compliant system(s)
 - Uploading relevant GS1 Identification Key into GS1 UK LocationManager/My Numberbank
-
- Specifies the department/staff member who is/are responsible for the above steps
 - Where relevant update organisational policy and procedure documents

Key learnings and advice

- **SOP circulation** – ensure all stakeholders mentioned within the SOP have access to relevant documentation, so they are familiar with the requirements outlined
- **PFI** – if there is a PFI contract in place, ensure this is noted in the SOP/policy and details of the roles and responsibilities, as well as the contract end date. Once the contract ends, responsibility for management will sit with the organisation and may require changes to the SOP around processes and resourcing.
- **Communications strategy** – provide information on changes which will impact the organisation, i.e. embedding Scan4Safety, location labels being affixed and not to remove them in any circumstances
- **Trust digital strategy** – ensure programme of works aligns with the NHS organisations digital strategy

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[Refer to step 6](#)

2.3 Identify physical and function GLNs

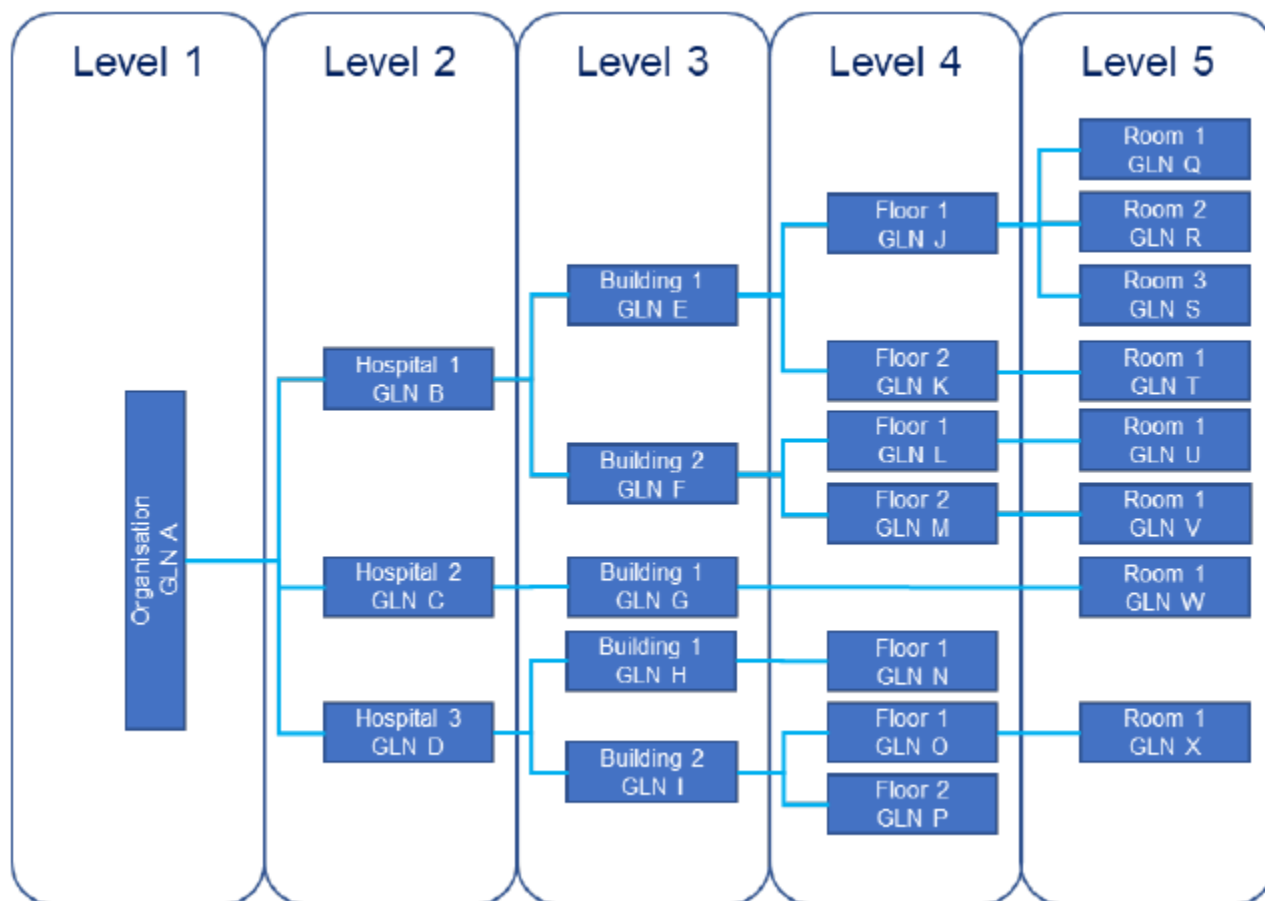
Perform an audit to gain an understanding on the number of GLNs required to cover both physical locations and function GLNs.

Physical locations – estates to undertake an audit to confirm physical locations across the estate from site, building, to floor and room level (levels 2-5).

Identify the number of GLNs required to cover physical locations across a warehouse / distribution centre if required.

Level	Description
Level one	A single code identifying the organisation/trust
Level two	Each site/campus/hospital operated by the trust
Level three	Individually identifiable buildings or areas within site/campus/hospital
Level four	This applies to floors within buildings
Level five	This applies to rooms, corridors and other discrete spaces that need to be identified

Example physical GLN organisational structure



Functions – Procurement / Finance to undertake an audit to confirm all function locations across the organisation. Each department would require a unique GLN assigning, i.e., requisition points, including bill to and ship to locations. These GLNs would then be held in the purchase-to-pay (P2P)/inventory management system (IMS).

Key learnings and advice

- **Physical location** – estates to confirm at the end of this exercise how many GLNs would be required to map all physical locations, sites, buildings, floors and rooms/spaces (this typically tends to be in the 1000s). This can also include warehouses and distribution centres.
- **Function** – procurement to confirm at the end of this exercise how many GLNs would be required to map against their departments (this typically tends to be in the 100s)
- **GLN extensions** – commonly used to assign a GLN to a bed bay / space or a cupboard. When a GLN extension is used this will limit the number of GS1 Identification Keys required from the GCP. As an example, when mapping GLNs at level 5 (room level) you will apply the following: (414) is the Application Identifier for the physical location, GLN 5055218861238, whilst (254) identifies the GLN extension component for sub-location Bed 31: (414)5055218861238(254)Bed31.

2.4 Update CAD drawings

Ensure all CAD (Computer-Aided Design) drawings, CAFM (Computer-Aided Facility Management) system, and BIMs (Building Information Modelling) are up to date and held electronically.

Ensure any amendments are undertaken based on the audit carried out to ensure the drawings are accurate.

3. Implementation

3.1 Identify the number of locations

Analyse results from the audit, determine how many locations are required to complete the mapping exercise across all five levels: organisation, site, building, floor, room or space. Determine if you are mapping the bed bays/spaces and if GLN extensions are required and determine how many GLNs are needed for functions from procurement/finance.

Depending on the GCP which has been assigned to the organisation you may require multiple GCPs based on the number of locations which have been identified.

A 7-digit GCP will allow up to 100,000 GLNs and an 8-digit GCP will allow up to 10,000 GLNs to be assigned.

Key learnings and advice

- **GLN allocation** – if multiple GCPs are required, allow the first 100–500 of the range to be allocated to procurement/finance for the assignment of GLNs to functions. This will ensure efficient allocation and avoid potential GLN duplication between estates and procurement.

3.2 Obtain your organisation's GS1 Company Prefix (GCP)

Contact GS1 UK to confirm your GCP. The GCP is unique to each organisation, provides an unambiguous identification and is essential to assign a GS1 Identification Key (*GLN*, *GTIN*, *GSRN*, *GIAI*). An NHS organisation may have multiple GCPs available depending on the number of GLNs required.

Access will be provided by GS1 UK to the relevant member of the organisation to gain entry to GS1 UK My Numberbank, this will allow the organisation to view and download allocated GS1 Identification Keys. This will be required to begin the process of mapping GLNs to locations.

Key learnings and advice

- **GCP** – a GS1 Company Prefix is available and is unique to each healthcare organisation. Where multiple GCPs are required, the process for maintaining these GS1 Identification Keys must be clearly documented in the organisation's SOP.

3.3 Mapping of physical and function GLNs

Once the organisation's unique GCP is confirmed, there are several options available to map locations.

The responsible officer across estates and facilities is responsible for the allocation of GLNs. This will be documented within the healthcare providers SOP.

Estates will provide procurement/finance with a list of available GLNs to map against functions. The responsible person in procurement will be identified in the SOP. That person will allocate a GLN to each function and update the spreadsheet accordingly, creating a mapping table which details each GLN and its associated function, for example: 5055123401239 – Active – Ward 24, Cost Centre 12345.

The GLN Identification Keys remaining will be issued by estates to allocate against physical locations, this can also include the mapping within a warehouse/distribution centre. This will either be undertaken on the spreadsheet and stored electronically in a central area, alternatively, depending on the system in place across estates, the GCP will be entered and the system will allocate a GLN to each physical space.

(The range of GLNs provided to procurement will be excluded, therefore removing any potential duplication within the estates system).

Key learnings and advice

- **Responsible officers** – refer to the organisation SOP to familiarise yourself with the process and who is responsible
- **Estates system** – identify systems in use for location management and determine if a GLN module is included. MICAD and Planet FM (MRI Software) have the capability to confirm an organisation GCP and the system will automatically allocate a GLN to each space across the estate. This tends to be allocated at level 5, although it is possible to allocate from levels 1–5.
- **Procurement systems** – identify systems in use for location management where a GLN could be identified, captured or shared and ensure GLNs are held in each accordingly. The responsible person will be outlined within the healthcare provider's SOP.
- **Allocation of GLNs** – a physical space will be allocated a GLN, and within that physical space one or more function GLNs may also be allocated. For example, room 07.06.232L will be allocated a physical location GLN by estates 5055218861238 and may also be allocated two function GLNs to confirm that within the room it services two requisition points. In this scenario, estates would allocate 5055218861238, and procurement/finance would allocate 5055123401239 and 5055123401277.

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[Refer to steps 18 and 19](#)

[GS1 GLN allocation rules](#)

3.4 Placement of physical location labels

Identify printers available and if there is budget available if they need to be procured.

Key stakeholders / project board to agree labelling format and approach.

Recommended label output

- GLN to be detailed clearly as HRI (Human Readable Interpretation) and the extension component included if used
- Location / Room number to be detailed clearly in an understandable format, i.e., Room number – 00.FMT902 or Room number SJH 07/06/232
- GS1 DataMatrix / GS1-128 linear barcode
- Trust logo
- S4S logo

Print a test physical GLN label and submit to GS1 UK for validation purposes. Ensure successful validation is confirmed prior to printing labels for placement. Agree who is responsible and accountable for the placement of physical labels and when and where this is undertaken with the project board.



Sample of a physical location label – room level (using a GS1 DataMatrix 2D barcode)



Sample of a physical location label – extension component (using a GS1 DataMatrix 2D barcode)

A GLN extension is capable of being up to 20 digits long and can consist of any combination of numbers, letters or special characters.

Devices or systems can scan and interpret the GS1 Application Identifier (254) which identifies the GLN Extension Component. When used alongside the GLN, it uniquely identifies the sub-location and links it to pertinent information, such as the name, address, function.

The GLN extension component offers numerous benefits for GS1 users, including:

- Greater visibility and control over sub-locations, optimising space utilisation and resource allocation
- Streamlining processes like stock taking, asset tracking, service delivery and quality assurance
- Enhancing data quality and interoperability of location information, improving traceability and security

Key learnings and advice

- **GS1 UK validation** – submit a test label for validation to avoid repeating the process if an error is identified
- **Format of labels** – it is good practice to clearly distinguish the label design between a room-level location label and a bed-bay location label using the extension component to support staff training and awareness
- **Placement of labels** – ensure when applying the GLN label that the location description matches that of the actual room / space before affixing. Agree where the label is to be affixed; this should be documented within the healthcare provider's SOP. It is also advised not to place GLN labels inside a lift.
- **Mental health settings** – agree alternative labelling strategies between estates and clinical users to ensure safe practice for service users, such as placing plaques out of reach, using secure fixings, and positioning labels above the door or externally
- **System compliance** – investigate existing systems to ensure they can facilitate the use of the extension component if used
- **Alternative mechanisms** – explore Near Field Communication (NFC) tags, which are beneficial and used by security teams. NFC tags do, however, incur additional charges.
- **Volunteer work** – understand options available to support the placement of physical labels. If this is undertaken by volunteer support, ensure the process meets health and safety regulations.
- **Solution providers** – there are several solution partners who can support with the hardware, printing and placement of physical labels across the organisation. Contact GS1 UK for more information.

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[Refer to steps 9 and 10](#)

3.5 Identify relevant systems

Identify trust systems which hold space records. Determine all affected systems where a GLN could be identified, captured or shared, and explore potential system integrations.

Ensure the SOP clearly identifies who is responsible for updating each system where a GLN is issued or amended, i.e. estates management systems (MICAD, Planet FM), purchase-to-pay (P2P), inventory management/point of care (IMS), electronic patient record (EPR), electronic health record (EHR) or enterprise resource planning (ERP) systems

Key learnings and advice

- **System integrations** – explore existing data flows, systems impacted, potential costs and whether a budget has been agreed and allocated. Explore alternative options, such as an internal data warehouse to support the movement of required data sets.

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[Refer to steps 15 and 19](#)

3.6 Update GS1 UK LocationManager / My Numberbank

Import GLNs to GS1 UK LocationManager and My Numberbank. As a minimum upload Function (Ship to and Bill to) GLNs and upload Physical GLNs where relevant.

Access to both GS1 UK LocationManager and My Numberbank are free of charge to NHS trusts. Contact GS1 UK to gain access across the platforms.

[GS1 UK LocationManager](#)

[GS1 UK My Numberbank](#)

4. Benefits and outcomes

4.1 Benefits across the NHS

There are a multitude of benefits available when adopting the GLN as this provides the foundation for multiple use cases across a Scan4Safety programme.

"Global Location Numbers have been vital in ensuring accuracy at Point of Care and Inventory Management. All storerooms and theatres on our Inventory Management System are assigned a GLN which allows us to easily identify where our products and implants are kept and used, for improved traceability and visibility over stock. Locations can be identified with a quick scan of a barcode, reducing administrative tasks for our ordering staff and clinicians."

Sukhpreet Doal – Scan4Safety systems manager, Sandwell and West Birmingham NHS Trust

"Global Location Numbers are vital to support colleagues in the adoption of GS1 standards, they are utilised in identifying locations, for example, by the maintenance team who can scan the GLN to confirm they are in the correct location to carry out their work."

Cecilia Crump, estates and facilities specialist compliance manager, South West Yorkshire Partnership Teaching NHS Foundation Trust

"The benefits of the Global Location Number are that it fits easily with the geographical record already in use across the organisation and facilitates easy integration to other systems. Having proper governance and procedures around the data is essential to a successful implementation of Global Location Numbers."

Tim Hawkes, head of technical development, Leeds Teaching Hospitals NHS Trust

"The Global Location Number was a core enabler of the Scan4Safety programme. With the support of the Trust, Global Location Numbers are now used in our procurement systems and PEPPOL communication with suppliers, our estates and facilities systems, the provision of fundamental data for a live bed state thorough our electronic patient record and our infection prevention system to ensure that we accurately and reliably transfer interoperable data relating to location."

"It is an area of the Scan4Safety portfolio that keeps expanding but the Global Location Number procedure provides control throughout the organisation."

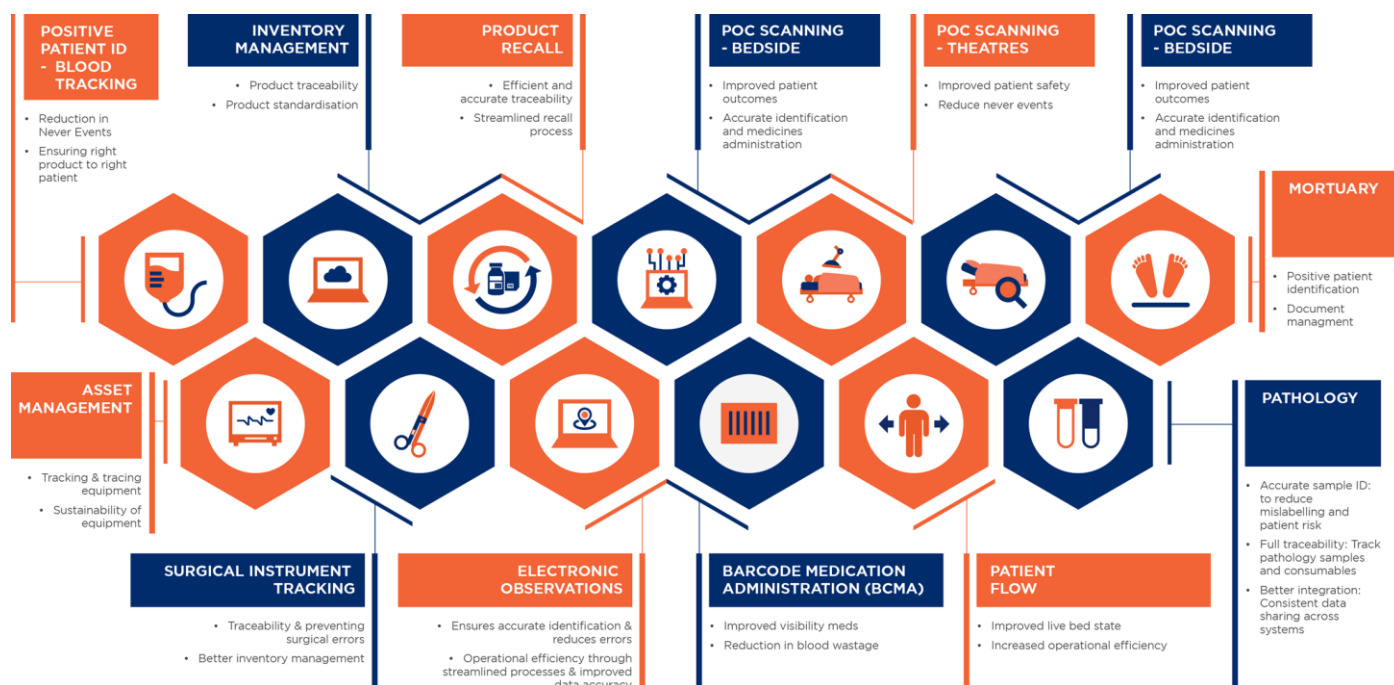
Mark Songhurst, programme manager Scan4Safety, Leeds Teaching Hospitals NHS Trust

4.2 Explore further use cases

Adoption of GLNs supports multiple use cases such as:

- **Asset Management** – assets can be tracked to specific locations, providing complete traceability
- **Surgical instrument tracking** – instruments can be tracked to specific locations, from the sterile services department (SSD) to ward level/theatres/labs
- **Patient flow/bed management** – improves live patient/bed flow, allowing complete visibility and traceability across the patient pathway
- **Inventory management/purchase-to-pay** – products can be tracked to specific locations from receipt to point of use. Use of NHS data standards across all systems.
- **POC scanning** – products can be tracked to specific locations and patients' procedures across all clinical settings
- **Product recall** – defective products can be quickly identified and removed from circulation from any location across the organisation

Example of Scan4Safety use cases where the GLN is essential.



5. Appendices

5.1 Appendix A: Sample standard operating procedure



ESTATES STANDARD OPERATING PROCEDURE

Standard Operating Procedure: New & Replacement GLNs	
TOP Ref: 23/10/19/CC	
Date of First Issue: 23.10.2019	Last Review Date: 23.10.25
Author: Cecilia Crump	
Site: Trust Wide	
Purpose Of Standard Operating Procedure: To describe the responsibilities and processes required to ensure every room has a GLN and is updated following any refurbishments, New Builds or identified missing labels.	

Standard Operating Procedure The CAFM Manager is responsible for producing Room Numbers and GLNs, updating the GS1 web site and the CAFM system. New Builds: 1) When a new building has been completed GLNs are required for each room and should be requested at the same time as room numbers. It is the responsibility of the Capital Team to provide updated drawings in a timely manner to the CAFM Manager, who will produce Room Numbers and GLNs. These will then be provided to the Capital Team for them to ensure they are put in the correct location prior to hand over. Refurbishments: 1) When an area or rooms have been refurbished the Capital Team are required to let the CAFM manager know of any rooms that have been amalgamated (providing drawings), listing the Room Numbers and GLN that have been kept and any that have been removed. 2) When an area or rooms have been refurbished the Capital Team are required to let the CAFM manager know of any rooms that have been split providing new room numbers and the CAFM Manager will provide new room numbers and GLNs and the Projects team must ensure these are affixed correctly
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ESTATES STANDARD OPERATING PROCEDURE

Missing GLNs:

- 1) It is the responsibility of all Estates Staff to report any room with missing GLNs to the CAFM Manager. Replacement GLNs will be printed and issued to the Estates Officers to ensure they are affixed
- 2) It is the responsibility of all Trust staff to report any GLN plaques that are found and send them to the CAFM Manager who will look up which room they are from and organise it being re-affixed or replaced.

Associated Documents: N/A

References: N/A

I confirm that I have read and understood the content of this Standard Operating Procedure

Name	Signed	Date

Please refer to the Estates Management Team where further clarification is required

5.2 Appendix B: Sample stakeholder map

Staff group	Sub group	Timing	Messages
Estates	Management CAD team Small schemes Engineers	All programme	Decision on plaque style Issuing GLNs as designs are changed – potential production of plaques Awareness of need to update CAD Use of GLNs
Facilities	Patient environment team Security	Prior to installation	Installation and reporting of missing plaques
Procurement	eProcurement	All programme	Assigning GLNs for Function and supply chain points
Digital and informatics teams		Start of programme and prior to go live	Ensure that GLNs are accessible in appropriate systems
Corporate planning		All programme	Awareness of need to update CAD
Infection prevention		Design phase	Ensure that the proposed plaques can be used in compliance with infection prevention standards
All trust staff		Prior to installation	Inform trust staff of what the plaques are and what they do

5.3 Appendix C: What is a GLN?

Place information is required by many separate functions within a trust. Historically, within the NHS, each trust and function has tended to develop its own approach to managing the places they operate within, geared to their own specific requirements. This has, over time, led to separate, uncoordinated approaches when identifying places within a trust, which do not always make a clear distinction between physical and function entities. Similarly, spaces in a trust can have multiple identities.

The GS1 identifier known as a 'Global Location Number' (GLN) has been selected by the NHS as the preferred option for a common place identifier. It provides a logical approach to describing locations and supports the integration of existing computer systems within a trust.

The GLN is a globally unique, standardised identifier that can be used to identify parties and locations, including legal entities, physical locations, digital locations and functions. GLNs are unique reference keys that allow for automated processes, where computers can efficiently route information to the right destination without manual intervention.

The GLN is a 13-digit numeric code that can be used as an identifier in systems or data carriers. It is made up of a GS1 Company Prefix (GCP) allocated to an organisation (typically the trust), a unique number assigned to a location and a check digit. The structure is as follows:

GS1 Company Prefix	Location reference	Check digit	Number of GLNs
5012345	00000	8	100,000
50551234	0123	9	10,000
506001234	999	8	1,000

GLN data structure:



The benefits of using GLNs:

- Enable the unique and unambiguous identification of any location
- Used in barcodes to improve traceability and inventory management
- Enable efficient sharing of transactional and master data between organisations
- Enable interoperability between systems, facilitating accurate and automated processes

What can GLNs identify?

■ Legal entity

A legal entity is an organisation and can include businesses, government bodies, charities, healthcare providers and even individuals.

In the world of GS1 standards, a legal entity is assigned a GLN to uniquely identify it across organisations.

■ Function

Functions are organisational subdivisions or departments such as accounts receivable or radiology.

Within GS1 standards, a function can be assigned a GLN for better internal tracking within a business process. This helps track the specific department or role involved in a transaction or process within the larger legal entity.

■ Physical location

A physical location could be something like a warehouse or pharmacy. It could also be something like a room, a bed space in a hospital or dock doors.

These locations have a physical presence and can be interacted with in the real world.

■ Digital location

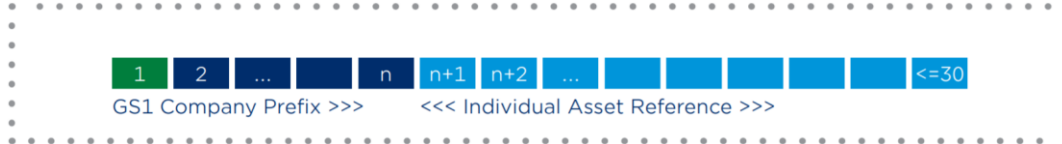
A digital location is an electronic (non-physical) address that is used for communication between computer systems, and may include the development status (testing, production), network address of the location and the system administrator contact details (email address, phone number, etc.)



5.4 Appendix D: GS1 Identification Keys to support location management

GS1 Identification Key	Format Key ■ Check Digit ■ numeric ■ alphanumeric ■ start of GS1 Company Prefix ■ Indicator Digit ■ filler digit <<< variable start position >>> variable length < = less than or equal to	Further guidance to meet GS1 and NHS requirements
GS1 Identification Keys for the core enablers: person, product and place		
GLN Global Location Number - Place The GLN can be used to identify locations for a broad range of use cases including identifying delivery points and the final destination of a loan kit, where loan kits are stored and sent from and delivered to. There are four types of GLNs: Legal entity GLN, physical location GLN, function GLN and digital GLN. The most commonly used GLNs are as follows: • Legal entity GLN: This can be used to identify any business, government body, department, charity, individual or institution that has standing in the eyes of the law and has the capacity to enter into agreements or contracts. Examples can be St John's Hospital, NHS Scotland and a Health Board. • Physical location GLN: This can be used to identify a site (an area, a structure or group	GLN is numeric and is 13 characters long which starts with the <u>GCP</u>, followed by the <u>location reference</u> and ends with the <u>check digit</u>. 1 2 3 12 13 GS1 Company Prefix >>> <<< Location Reference ■ Check Digit ■ numeric ■ start of GS1 Company Prefix <<< variable start position >>> variable length The Extension Component can hold up to 20 characters and is alphanumeric. Using the Extension Component with the same GLN (GLN + GLN Extension Component) substantially increases the number of locations that can be identified. The definition of the GLN Extension Component is at the discretion of the NHS organisation.	Sections 2 & 4 of GS1 General Specifications

of structures) or an area within a site where something was, is or will be located. Examples include hospital ward, bed location and a corridor. • Function GLN: This can be used to identify an organisational subdivision or department based on the specific tasks being performed, as defined by the organisation. An example of a function is the St Johns Hospital - Critical Care Unit. There is the option to use the GS1 GLN Extension Component to identify internal physical sublocations such as bed locations.		
GSRN Global Service Relation Number - Person The GSRN can be used to identify the <u>person</u>. Person examples include: A provider (e.g. caregiver) Recipient of a service (e.g. patient)	GSRN is numeric. It is an 18-digit number which starts with the <u>GCP</u>, followed by the <u>service reference</u>, and ends with the <u>check digit</u>. The definition of the service reference is at the discretion of the GS1 Member. For example, NHS Digital released the DCB1077: AIDC for Patient Identification standard that includes the utilisation of the patient NHS number as the service reference for patient GSRNs in NHS England. 	Sections 2 & 4 of GS1 General Specifications
GTIN Global Trade Item Number - Product The GTIN can be used to identify any <u>item (product or service) that may be priced, or ordered, or invoiced at any point in any supply chain</u>.	GTIN is numeric. There are four formats. The 13-digit GTIN (GTIN-13) and the 14-digit GTIN (GTIN-14) are the commonly utilised formats in the healthcare sector. The GTIN-13 starts with the <u>GCP</u> followed by the <u>item reference</u> and ends with the <u>check digit</u>. For each GTIN-13, an additional range of 14-digit numbers can be created which are the GTIN-14s, which are typically used to identify packaging for that product. The GTIN-14 starts with the indicator digit followed by the GTIN-13's <u>GCP</u> and <u>item reference</u> and ends with the <u>check digit</u>. The indicator digit for each GTIN-14 range from 1 to 8. All GTIN-14s beginning with the indicator digit, 9, are reserved for variable measure items.	Sections 2 & 4 of GS1 General Specifications and GS1 Healthcare Implementation Guideline

		
GS1 Identification Keys for assets		
GIAI Global Individual Asset Identifier The GIAI can be used to identify an individual asset, loan kit and sterile instrument.	The GIAI can be up to 30 characters long. It starts with the <u>GCP</u> in numeric format followed by the <u>individual asset reference</u> in alphanumeric format. The individual asset reference is used to identify the individual loan kit. The definition of the individual asset reference is at the discretion of the loan kit manager at the hospital site.  Although the individual asset reference can be in alphanumeric format and can start with leading zeros, the 96-bits encoding for passive RFID data carriers (the most commonly used GS1 data carrier for loan kits) requires the individual asset reference to be numeric and a zero as the first digit cannot be used. See EPC Tag Data Standard for further information.	Sections 2 & 4 of GS1 General Specifications GS1 Healthcare Implementation Guideline
GRAI Global Returnable Asset Identifier The GRAI can be used to identify returnable items such as pallet bases, roll cages, plastic containers or gas cylinders which are used in the movement of goods. The goods themselves are identified by a GTIN or a Serial Shipping Container Code (SSCC).	The GRAI can be up to 30 characters long. It starts with a <u>filler digit</u>, 0, followed by the <u>GCP</u> and <u>asset type</u> in numeric format, and ends with the <u>check digit</u>. The GRAI can also include an alphanumeric <u>serial component</u>, which identifies the individual loan kit within a given loan kit type. The definition of the serial number is at the discretion of the loan kit manager at the hospital site.  Although the serial component reference can be in alphanumeric format and can start with leading zeros, the 96-bits encoding for passive RFID data carriers (the most commonly used GS1 data carrier for loan kits) requires the returnable asset reference	Sections 2 & 4 of GS1 General Specifications GS1 Healthcare Implementation Guideline

	to be numeric and a zero as the first digit cannot be used. See EPC Tag Data Standard for further information.	
SGTIN – GTIN + serial number SGTIN is a GTIN plus a serial number which allows different units of the same product line to be individually identified. A GTIN itself does not provide unique identification of each unit of a product because it does not uniquely identify each instance of a physical object. The brand owner and the manufacturer are responsible for ensuring the non-duplication of serial numbers for a GTIN.	<u>GTIN</u> GTIN is numeric. There are four formats. The 13-digit GTIN (GTIN-13) and the 14-digit GTIN (GTIN-14) are the commonly utilised formats in the healthcare sector. The GTIN-13 starts with the <u>GCP</u> followed by the <u>item reference</u> and ends with the <u>check digit</u>. For each GTIN-13, an additional range of 14-digit numbers can be created which are the GTIN-14s which is typically used to identify packaging for that product. The GTIN-14 starts with the indicator digit followed by the GTIN-13's <u>GCP</u> and <u>item reference</u> and ends with the <u>check digit</u>. The indicator digit for each GTIN-14 range from 1 to 8. All GTIN-14s beginning with the indicator digit, 9, are reserved for variable measure items.  <u>Serial number</u> The serial number field is alphanumeric and cannot exceed 20 characters. Although the serial number reference can be in alphanumeric format and can start with leading zeros, the 96-bits encoding for passive RFID data carriers requires the serial number to be numeric and a zero as the first digit cannot be used and the decimal value must be less than 2. See EPC Tag Data Standard for further information.	Sections 2 & 4 of GS1 General Specifications GS1 Healthcare Implementation Guideline

5.5 Appendix E: Data carrier technologies

Data carrier	Readers	Further guidance to meet GS1 and NHS requirements
GS1 DataMatrix  (17) 050101 (10) ABC123 (01) 04012345678901	- Information encoded within a GS1 DataMatrix barcode can be read by an optical device (e.g. camera scanner in a smartphone) - Readers will scan the barcode manually - The scanning needs to be done in line of site - Single barcodes can be scanned at once	Sections 3, 5 & 7 of GS1 General Specifications GS1 Human Readable Interpretation (HRI) Implementation Guideline GS1 DataMatrix Guideline
GS1-128  (01) 0 9501101 53000 3	- Information encoded within a GS1-128 barcode can be read by any barcode reader, ranging from light beams to optical devices (e.g. camera scanner in a smartphone) - Readers will scan the barcode manually - The scanning needs to be done in line of site - Single barcodes can be scanned at once	Sections 3, 5 & 7 of GS1 General Specifications GS1 Human Readable Interpretation (HRI) Implementation Guideline
Passive RFID 	- Information encoded within a passive RFID tag can be read by a reader by a radiowave - Fixed readers: - Typically located in corridors and entrances and exits - If fixed readers are in a room, then its contents can be monitored continuously, and warnings generated of any equipment entering or leaving the room - Mobile readers: - Can be based on a trolley that is moved around a hospital going through each room weekly or a monthly basis - Can be as a handheld wand which can be used to scan items within a room or cupboard, patient bedside. The handheld wand can beep when it finds specific tags and beeps louder as it gets closer to a tag - Highlights where things move within the readers	Sections 3, 5 & 7 of GS1 General Specifications EPC Tag Data Standard

5.6 Appendix F: Acronyms and abbreviations

1D	One-dimensional
2D	Two-dimensional
AIDC	Automatic identification and data capture
BIM	Building Information Modelling
CAD	Computer-Aided Drawing
EPR	Electronic Patient Record
Function GLN	Function Global Location Number
GCP	GS1 Company Prefix
GIAI	Global Individual Asset Identifier
GLN	Global Location Number
GLN E	Global Location Number Extension
GRAI	Global Returnable Asset Identifier
GSRN	Global Service Relation Number
GTIN	Global Trade Item Number
HRI	Human Readable Interpretation
IMS	Inventory Management System
NFC	Near Field Communication
P2P	Purchase to pay
PFI	Private Finance Initiative
Physical GLN	Physical Global Location Number
RFID	Radio-frequency Identification
SGTIN	Serialised Global Trade Item Number
SOP	Standard Operating Procedure