Government Initiatives

Using Global Location Numbers for a unique identification system in Swiss healthcare

In the early 1990s, a group of visionaries stated that the current way to identify actors in the Swiss healthcare industry was far from sustainable and very inefficient. Every actor— such as healthcare manufacturer, distributor, hospital, pharmacy or medical doctor—was identified in multiple ways. For example, a medical doctor might have been identified differently by the national accident insurance, by a group of health insurances, by different private (accident) insurances, by the federal military insurance, by federal disabilities insurance, by the federal narcotic control, by groups of manufacturers, by each wholesaler, to name a few! In short, the doctor had to manage many different identification codes when corresponding and invoicing each of these organisations. With this lack of standardisation, accuracy was impossible and efficiencies in healthcare processes were nonexistent. The visionaries understood that new processes would only be possible if a robust, accurate and scalable identification system was provided by a neutral source for all of the Swiss healthcare industry.

Now, for nearly 30 years, this solution enabled by the GS1 Global Location Number (GLN) has been in place. Global Location Numbers support the needed identification system by uniquely identifying each of the actors and their locations. The GLN has proven to be the "right choice" in standardising and simplifying the identification of all stakeholders, offering significant benefits for the Swiss healthcare system. By choosing the GS1 GLN as the global identification key, the visionaries have strengthened the use of GS1 standards in the healthcare industry and helped stakeholders understand how globally unique identification can link master data and improve logistical and clinical processes.

By Nicolas Krattinger and Christian Hay

The GLN and GSRN as identification keys

The first objective was to revise Switzerland's federal narcotic control system, which was fully paper-based until 1992. The Federal Office of Public Health (FOPH), which was at that time in charge of maintaining the national control system, was a key partner to ensure that each stakeholder secured authorisation for the trade of narcotic prescription drugs and was provided entry into the reference database, called RefDatabase.

As a member of the database, each stakeholder is identified with its own GLN, allocated by a neutral organisation, the RefData foundation. This complete list or database of healthcare stakeholders also needs to be constantly updated.

One critical challenge was to secure the complete, countrywide identification of healthcare stakeholders concerned with narcotic control as well as for supply chain processes. Standard operating processes had to be developed to organise the management of this data, avoiding duplication and other potential mistakes such as when a stakeholder's name is spelled differently according to a different language (e.g., French, German, Italian).

In the late 1990s, GS1 adopted a new identification key—the Global Service Relation

Number (GSRN)—that uniquely identifies individuals such a provider of care services in an organisation like a hospital.

Several times, GS1 Switzerland and its partners investigated if the GLN identification keys for these individual care services providers could be migrated to GSRN identification keys. This shift would mean making significant changes in user databases, in healthcare provider ID cards, and more, since the GSRN has more characters than the GLN.
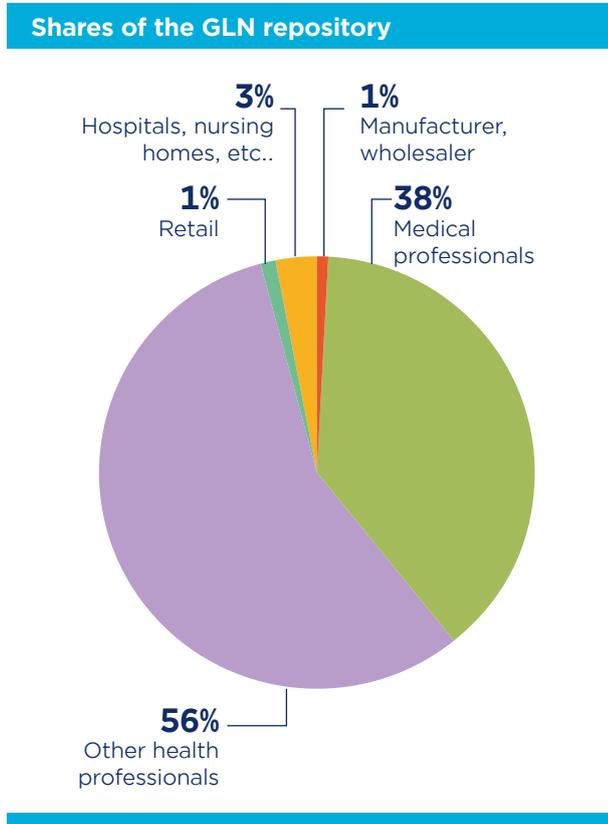
Ultimately, the decision was made to continue using the GLN, based on its deep adoption and use in existing healthcare provider processes and IT systems. Yet, as new initiatives are launched, it is recommended to use GLNs for legal entities like hospitals and GSRNs for individuals like nurses or medical doctors.

Introducing the RefDatabase

RefData foundation has a dedicated office that manages partner identification across Switzerland's healthcare system with its RefDatabase. This small office has set up procedures to meet the market requirements for completeness and accuracy, by establishing and maintaining relationships and link with national organisations for cross-checking data (manual or automated).

The RefDatabase managed by the RefData foundation has established links to other national organisation databases for cross-checking stakeholder data.
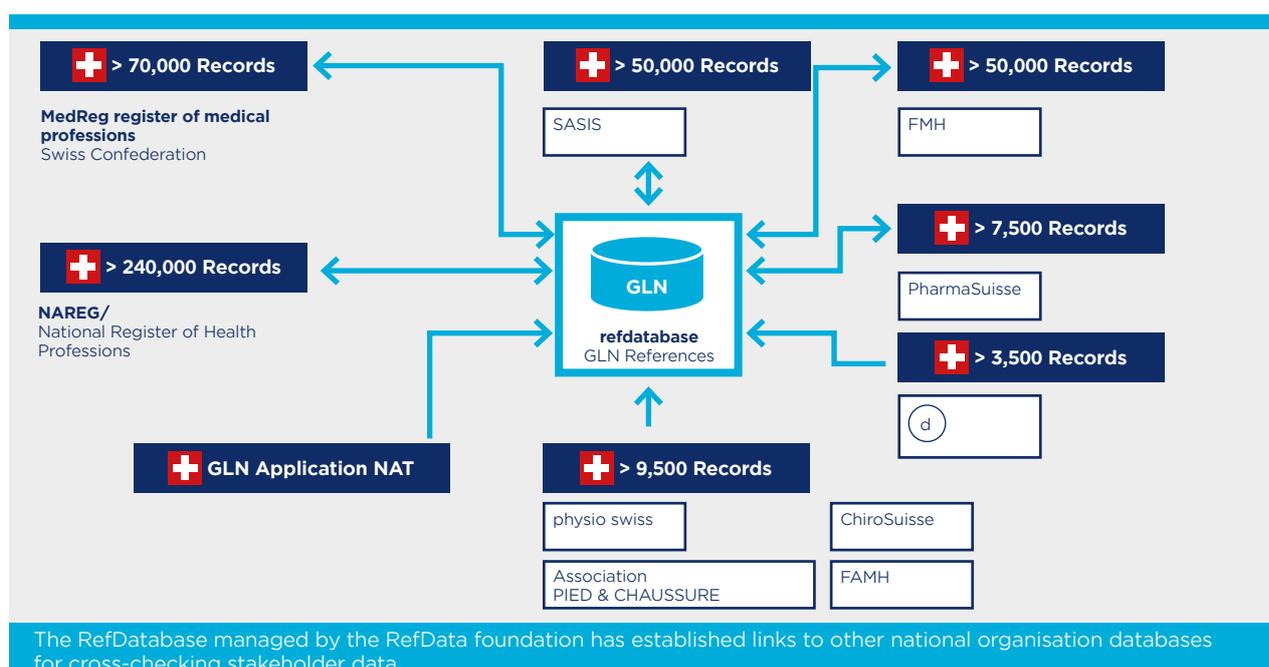
RefDatabase is the "identification manager" for stakeholders in the Swiss healthcare. It addresses more than 300,000 active entries as detailed in the graphic on page 97.

Shares of the GLN repository

3%
Hospitals, nursing homes, etc..

1%
Manufacturer, wholesaler

1%
Retail

38%
Medical professionals

56%
Other health professionals

The process to obtain a GLN from RefDatabase consists of posting a request. This request for information is cross-checked with various stakeholders such as the Register of Commerce for commercial entities (e.g., pharmacy, laboratory). The national narcotic control body will indicate if there is authorisation provided for that commercial entity. For individuals, the cross-check is made with the appropriate trade association, (e.g., for medical doctors, dentists, pharmacists, physiotherapists), and with the national register for health professionals.

In turn, the consulted registries receive the GLN allocated by RefDatabase and, in turn, document if the GLN is relevant for their own database and publish the GLN if it is appropriate to their mission.

Most data exchanges between RefDatabase and other registries are processed electronically, with very limited human involvement.

This improves data quality by reducing the time associated with processing and verifying the data.

RefDatabase is publicly accessible and provides a limited amount of information about identified entities. This is due to RefData's mission, which is limited to this identification process. However, RefDatabase includes additional information that is needed for the cross-matching of entries and the detection of possible duplications.

Each RefDatabase entry is classified to facilitate search capabilities and use across the industry. For individuals, 47 codes are currently used, which are taken from ISCO-08 (International Standard Classification of Occupations, published in 2008 by the International Labour Organisation). These classification codes are further linked to the Swiss Federal Statistical Office's (FSO) profession classifications. Organisations are classified in 30 categories, as defined by the Swiss FSO.

Identification management: centralised vs. decentralisation

Centralised identification management can ensure the accuracy of top-level identification, e.g., between 3 and 10 GLNs assigned to a hospital. When one organisation decides to implement GLNs across its facilities and departments, that organisation is accountable for maintaining these GLNs as accurate and complete.

This is why GS1 Switzerland encourages organisations such as hospitals to develop their own GLN master data base, and decide which of these identifiers should be made public and published through RefDatabase. GS1 Switzerland has further developed its own GLN database to serve not only the Swiss healthcare industry, but all GS1 users from all industries in Switzerland.

The two databases—the GLN database managed by GS1 Switzerland and the RefDatabase—are linked to each other and offer secure, complete and accurate stakeholder information. For example, the mass upload of GLNs is a service offered by GS1 Switzerland's GLN service, as well as maintenance with an API. These services help support the needs of healthcare stakeholders for seamless upload procedures.

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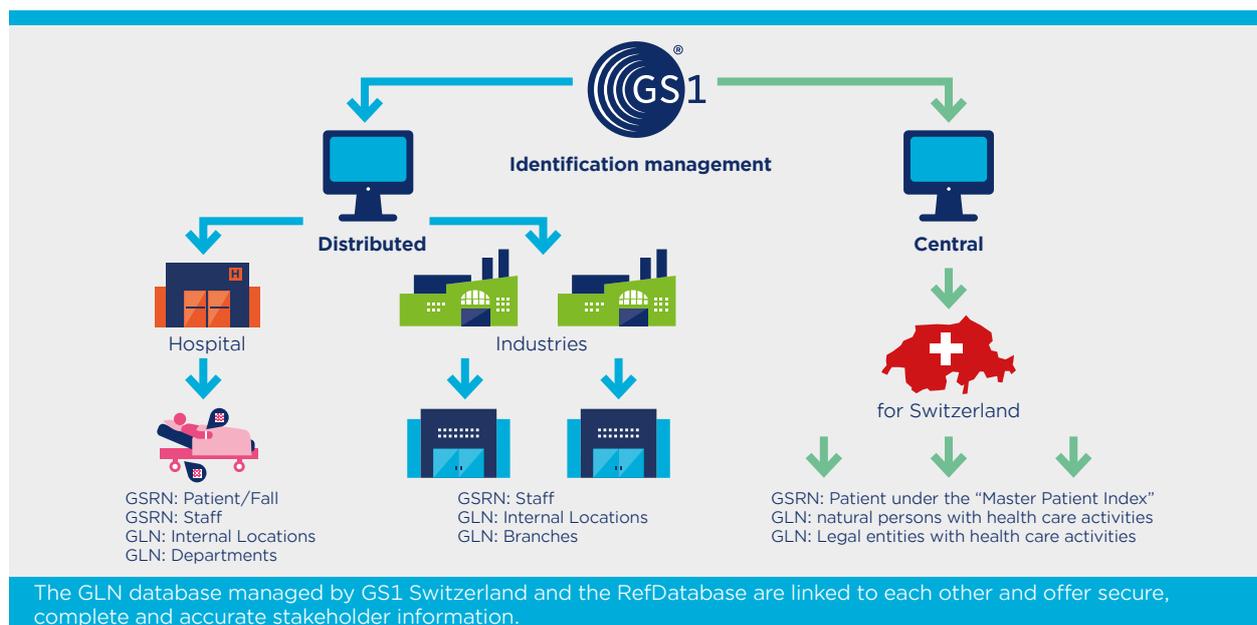
Similar rules apply for the identification of patients. Whereas the national patient identifier, the GSRN, is maintained centrally through a master patient index, stakeholders such as hospitals or nursing homes are encouraged to embed or replace their current identifier with a GSRN maintained locally. This causes no process disruption and increases standardisation of patient identification within the organisation as well across organisations.

Benefits of GS1 standards in healthcare

Implementing GS1 standards in the healthcare industry takes time, particularly when it comes to users such as hospitals. This is because their IT systems have very long life cycles.

Having developed this vision in the early 1990s, global unique identification has progressively demonstrated benefits. Hospital and retail pharmacy software packages come with GS1-compatible releases.

Narcotic control continues to be managed by a small team with strong IT support. The progressive deployment of eHealth processes is built on a solid, robust track record. With this progress, authorities have come to understand that the increased use of GS1 standards provides a sustainable and scalable system for unique identifications.

Considering clinical processes, stakeholders have adopted recommendations[1] for the identification of primary packages and manufacturers' implementations have continued to grow year-over-year. Add to this the adoption of the GS1 GSRN, as a patient identification key, combined with the GS1 Service Relation Instance Number (SRIN)[2], in healthcare provider environments.

The use of GS1 standards will continue to strengthen data capture processes at points of care since scanning GS1 identifiers like the GSRNs or SRINs encoded in GS1 barcodes reduces uncertainties and IT complexities. What's more, doctors and nurses are quickly becoming familiar with GS1 DataMatrix barcodes and the benefits of scanning for safer processes and documentation.

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1   *"Joint recommendations for the avoidance of confusion concerning the primary packaging and labelling of solid pharmaceutical dosage forms"*
    http://www.patientensicherheit.ch/dms/de/themen/ Sound-a-like-look-alike-Empfehlungen/x3199_ Gemeinsame-Empfehlungen_Prim-rverpackung_Beschriftung_feste_ Arzneiformen_2012_E/x3199_Gemeinsame-Empfehlungen_ Prim%C3%A4rverpackung_Beschriftung_feste_ Arzneiformen_2012_E.pdf

2   *A Service Relation Instance Number (SRIN) may be added to the GSRN; for example, to identify the phase of a medical treatment for a patient.*

Next steps

For GS1 Switzerland, the need to create greater awareness, interest and adoption of the GS1 identification system by stakeholders remains high. The RefData foundation contributes by explaining the benefits of global unique identification. As a result, for example, the new Swiss Medication Verification Organisation (www.smvo.ch) is adopting GLNs for the verification processes against medicines falsification. Other opportunities to demonstrate how global identification standards provide benefits still exist and remain a top priority for GS1 Switzerland.

It is expected that the next time the national authorities print prescriptions sheets for narcotics (a process which is centralised for regulatory reasons), they will adopt another GS1 identifier, the Global Document Type Identifier (GDTI), since it offers yet another "best solution" for unique identification worldwide.

About the Author

Nicolas Krattinger *has been Referencing Manager at HCI Solutions Ltd. for over 17 years.*

After studying earth sciences and obtaining a degree in geological engineering, Nicolas worked in the oil industry for several years. Throughout his career, he had the opportunity to develop skills in computer science and database management.

In the late 90s, he reoriented his career and joined the healthcare sector, initially working in project management for an association of the pharmaceutical branch, then joining HCI Solutions Ltd., a master data company for the Swiss health market.

Nicolas is currently responsible, among other things, for the management and development of the RefDatabase (www.refdata.ch), the public database on actors in the health sector in Switzerland consisting of more than 300,000 records referenced by GLN codes. This task is carried out under mandate from the RefData Foundation.

Christian Hay *is Senior Consultant Healthcare with the GS1 Global Office. For more than 25 years, Christian has worked in the healthcare industry. In 1990, he played an instrumental role in the establishment of narcotic control, by using the GS1 system of standards in Switzerland.*

In 2000, Christian founded Medinorma LLC with business colleagues. As a consultant, he works for GS1 Switzerland, GS1 Global Office and other GS1 organisations, focusing on interoperability for IT standards in the healthcare industry. Christian currently represents GS1 in organisations such as ISO TC 215 (Chair of Working Group 6 "Pharmacy" in the technical committee of Health Informatics), CEN TC 251, HL7 and ICCBBA (transfusion and transplantation). In his role with ISO TC 215, Christian is involved in development of IDMP standards and implementation guides. .

Christian contributes to the board of the Swiss Society for Medical Informatics and was the first chairman for IHE Suisse, which included the organisation of a European Connectathon in Bern

Christian gives lectures on healthcare logistics at the Bern University of Applied Sciences. In April 2015, Christian was asked to contribute to the INTERPOL World conference in Singapore.

About HCI Solutions Ltd.

HCI Solutions Ltd*. is the master data company for the Swiss health market and develops management solutions for pharmacies as well as tools to securely manage, communicate and distribute sensitive health data. The database includes over 200,000 products and allow all healthcare providers, the authorities and insurers to communicate on the same database. It also offers a professional POS software for pharmacy chains and a solution for single pharmacies and drugstores. HCI Solutions works further on contract basis for the RefData foundation.*

https://www.hcisolutions.ch/fr/index.php