SNOMED International

2022 Annual Report

COLLABORATING FOR IMPACT:
THE ACHIEVEMENTS OF A DYNAMIC GLOBAL COMMUNITY

SNOMED International

About SNOMED International

SNOMED International* is a not-for-profit organization that owns and maintains SNOMED CT, the world's most comprehensive clinical terminology. We play an essential role in improving the health of humankind, by determining standards for a codified language that represents groups of clinical terms. This enables healthcare information to be exchanged globally for the benefit of patients and other stakeholders. We are committed to the rigorous evolution of our products and services, to support the growing needs of our Members and deliver continuous innovation for the global healthcare community.

VISION

By 2025, Clinical Terminologies will be used globally, which will result in better health and improved patient outcomes, supported by one language of health.

MISSION

SNOMED International sustainably produces a global clinical vocabulary and other services that enables the clear exchange and analysis of health information for all.

*SNOMED International is the trading name of the International Health Terminology Standards Development Organisation (IHTSDO)

Message from the General Assembly Chair, Management Board Chair and CEO

SNOMED International's 2022 Annual Report, "Collaborating for impact: The achievements of a dynamic global community", depicts a digital health landscape that has transcended national borders to move the interoperability agenda forward. Placing the outcome of collaboration ahead of individual drivers, stakeholders across the global health spectrum have united to accept the challenge of delivering timely and secure access, integration and use of electronic health data to optimize health outcomes for individuals and populations.

For SNOMED International, this progression is clear as we pursue completion of our 2020-2025 organization strategy, and fulfilling the role of terminology integrator. This has become a prime focus of our products and services, adoption and innovation journey. Collaborations with standards development organizations to produce interoperability strategies, approaches, and most importantly, artifacts, such as the International Patient Summary Terminology, and the delivery of easier mechanisms for our stakeholders to consume the suite of clinical, technical, educational and industry standards they need, continue to become reality.

We have continued to strengthen the connection with our Members and affiliates, creating new regional approaches and funding models to support the adoption and uptake of SNOMED CT. Welcoming Thailand, El Salvador and Indonesia to the Member community and extending regional access to Western Cape Government in South Africa are among 2022's achievements. Further, dedicated work with the European Union (EU) has driven the use of standardized terminology in EU Member States, greatly assisted by its funding program for SNOMED CT.

Message from the General Assembly Chair, Management Board Chair and CEO continued

To support the global drive for interoperable solutions, of which terminology standards are a key element, the agility of SNOMED CT must also keep pace. A leader in how standards are provisioned and managed, SNOMED CT celebrated its first year of releasing SNOMED CT monthly, enabling many healthcare organizations and entities to consume priority content as it is available to support patients' global health needs. Frequent SNOMED CT releases reinforce the quality of implementation globally, enabling clinicians to record patient interactions more accurately and improving research and analytics capabilities that contribute to improved care delivery and clinical research. In particular, SNOMED CT is well-positioned to support innovation in medicine and research, enabling it to play an increasingly prevalent role in safe and informed care delivery and outcomes for its many stakeholders.

Ultimately the challenges of navigating interoperability are complex and ones that require global perspectives and a multidisciplinary effort to resolve. Inspired by the coalition of our dedicated stakeholders, SNOMED International is committed to continuing the charge for excellence in terminology standards to benefit a connected and improved health care reality for patients and citizens globally.
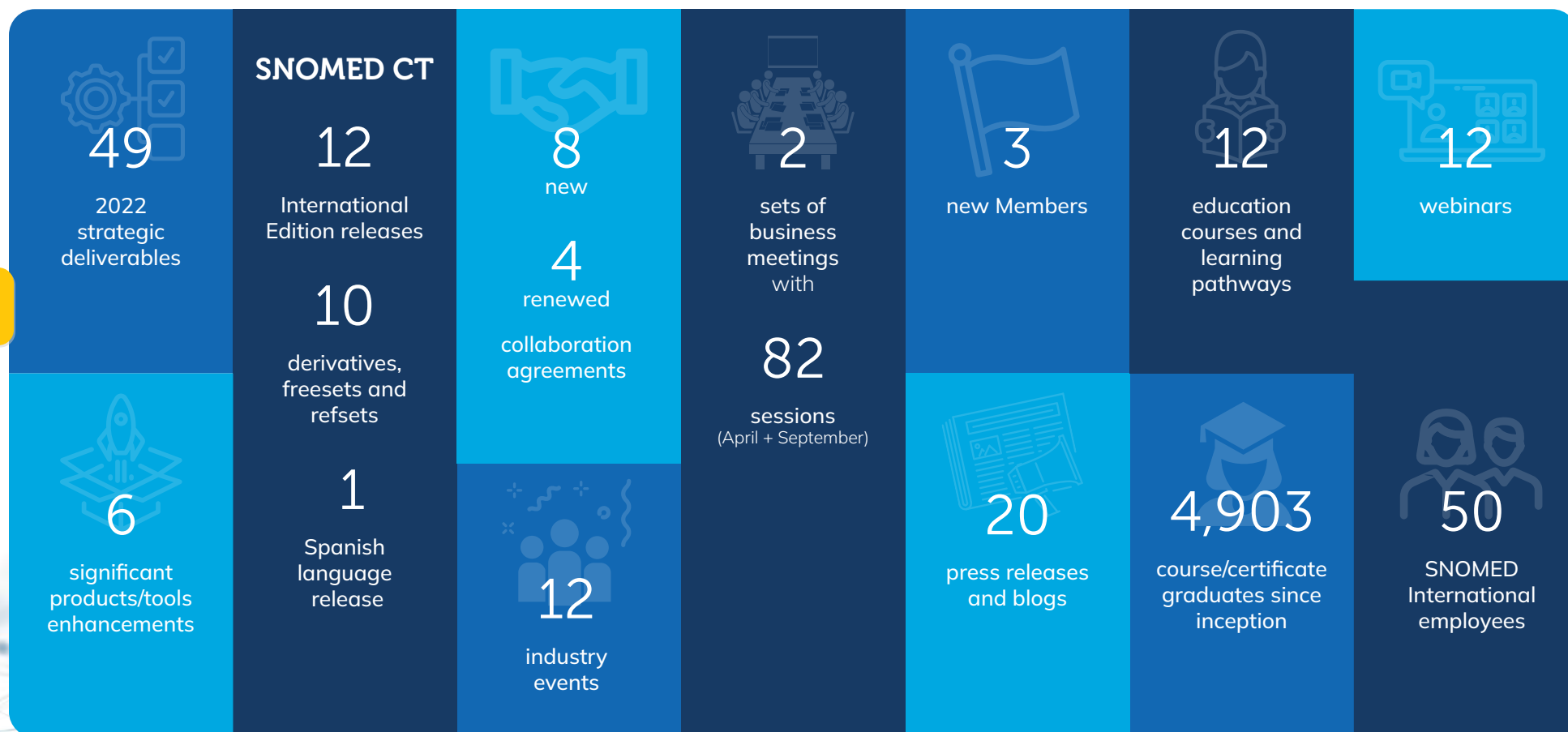
Alex Elias, Chair, General Assembly

Joanne Burns, Chair, Management Board

Don Sweete, CEO SNOMED International

2022 Summary

49 2022 strategic deliverables

6 significant products/tools enhancements

SNOMED CT

12 International Edition releases

10 derivatives, freesets and refsets

1 Spanish language release

8 new

4 renewed collaboration agreements

12 industry events

2 sets of business meetings with

82 sessions (April + September)

3 new Members

20 press releases and blogs

12 education courses and learning pathways

4,903 course/certificate graduates since inception

12 webinars

50 SNOMED International employees

2020-2025 Strategy Updates

Delivering on our strategic goals

SNOMED International continued to deliver on its 2020-2025 Strategy with the successful completion of 41 of its 49 deliverables for 2022, putting us well on track for successful completion of all 237 deliverables by the end of 2025.

THIS YEAR'S DELIVERABLES FOCUSED ON:

- Evolving and enhancing SNOMED CT and related tools to best serve improvements in patient outcomes and sustainably meet the needs of the integrated health and social care systems. In 2022, two major advances in this area include making the clinical terminology available on a monthly basis and expanding opportunities for the SNOMED CT community to participate in its development. Frequent releases also enabled SNOMED International to quickly respond to the need for monkeypox content in 2022 and include it in the June 2022 International Edition release;

- Continuing to position SNOMED CT as the hub of an active collaboration agreement ecosystem by forging partnerships, collaborations and relationships with other standards organizations and by supporting, facilitating and integrating other terminology standards and classifications into SNOMED CT;

- Communicating SNOMED CT-driven improvements in patient outcomes and stakeholder benefits. In 2022, we continued to develop stakeholder experience use cases showcasing the SNOMED CT value proposition;

- Promoting the adoption and use of SNOMED CT by identifying and determining the digital maturity model for all our stakeholders; and

- Leveraging emerging technologies to better deliver value for stakeholders and drive efficiencies both at the point of care and across the organization.
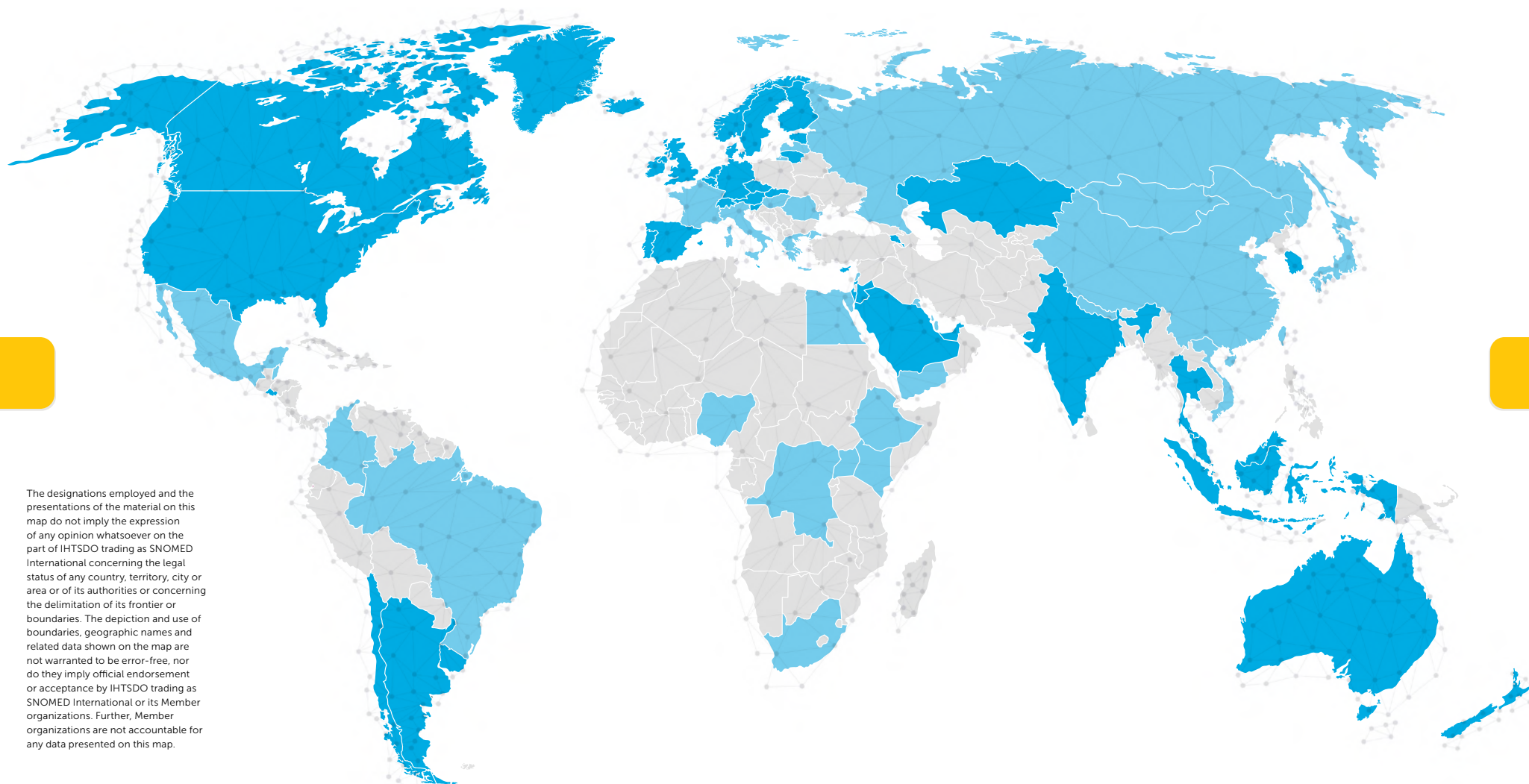
In the third year of our strategy, SNOMED International has completed 63% of its 5-year strategy deliverables.

Learn more about our 2020-2025 Strategy

SNOMED International

Our Members

The designations employed and the presentations of the material on this map do not imply the expression of any opinion whatsoever on the part of IHTSDO trading as SNOMED International concerning the legal status of any country, territory, city or area or of its authorities or concerning the delimitation of its frontier or boundaries. The depiction and use of boundaries, geographic names and related data shown on the map are not warranted to be error-free, nor do they imply official endorsement or acceptance by IHTSDO trading as SNOMED International or its Member organizations. Further, Member organizations are not accountable for any data presented on this map.

Americas

Argentina	United States
Canada	Uruguay
Chile	
El Salvador	

Europe, Middle East and Africa

Austria	Denmark	Iceland	Lithuania	Norway	Slovak Rep.	United Arab Emirates
Belgium	Estonia	Ireland	Luxembourg	Portugal	Spain	United Kingdom
Cyprus	Finland	Israel	Malta	Rep. of Slovenia	Sweden	
Czech Rep.	Germany	Jordan	Netherlands	Saudi Arabia	Switzerland	

Asia Pacific

Australia	Indonesia	Rep. of Armenia
Brunei	Kazakhstan	Rep. of Korea
Hong Kong, China	Malaysia	Singapore
India	New Zealand	Thailand

Members   Affiliates

SNOMED International

Our Members

i

Learn more about our 2022 new Members:

Thailand

El Salvador

Indonesia

15 Years of Member Growth (2007-2022)

44
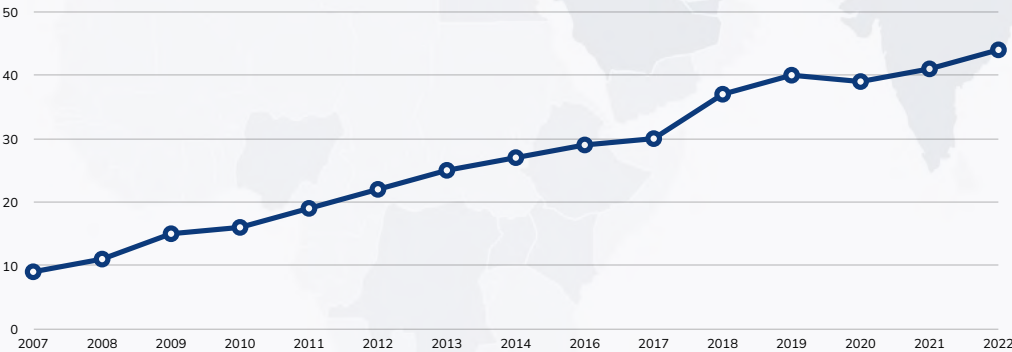
MEMBERS

MEMBER SUCCESS STORY:

The South Korea mapping initiative supports clinical research

South Korea joined SNOMED International two years ago as the 39th Member. Korea Health Information Services (KHIS), a government affiliated institute for health data and information management under the Ministry of Health and Social Welfare, bears the responsibility for the Korean National Release Center.

KHIS prepared a roadmap to adopt and implement SNOMED CT in Korea in 2021. One of the strategies to promote use of SNOMED CT in Korea is to develop a map between National Health Insurance (NHI) Claims Codes and SNOMED CT, and disseminate the map as a reference set in the Korean Extension of SNOMED CT.

Since South Korea has a public and single-payer system for healthcare services based on fee-for-service payments, NHI Claim Codes are used by all healthcare providers for reimbursement in Korea. We mapped NHI reimbursement claim codes to SNOMED CT to facilitate semantic interoperability and data reuse for research. The source codes for mapping were 2,500 reimbursement claim codes for therapeutic and

surgical procedures such as surgery, endoscopic procedures, and interventional radiology. The target for mapping was the 'Procedure' hierarchy of the International Edition of SNOMED CT. We translated Korean terms into English, clarified their meaning, extracted characteristics of the source codes, and mapped them to pre-coordinated concepts. If a source concept was not mapped to a pre-coordinated concept, we created a post-coordinated expression.

The mapping results were validated internally using dual independent mapping and group discussion by trained terminologists, and by two physicians with experience in SNOMED CT mapping. Out of 2,500 source codes, 1,298 (51.9%) codes were mapped to pre-coordinated concepts, and 1,202 (48.1%) codes were expressed with post-coordination.

The mapping of the NHI claim codes for therapeutic and surgical procedures to SNOMED CT is expected to support clinical research by facilitating the utilization of health insurance claim data.

Our Products and Services

2022 Highlights

In 2022, we continued to develop and improve the content of our clinical terminology and the tools and services required for successful implementation and deployment. We also expanded our universe of collaborations with new partners and agreements that will further enhance the utility of SNOMED CT.

2023
Products & Services Catalog

snomed.org

i **Learn more** about our Products & Services

2022 Highlights continued

NEW AND UPDATED PRODUCTS, TOOLS AND SERVICES

- **Launched frequent (monthly) releases**. Following a 2021 trial period, in 2022, we began to regularly release the SNOMED CT International Edition at the end of each month, rather than just at the end of each January and July. Making the product available on a monthly basis means less down-time required between release cycles, enabling faster turnaround of authoring content and a more agile and responsive terminology;

- **Released the production version of our International Patient Summary (IPS) terminology**, an open, standalone terminology intended for use by non-Member countries. The IPS is an extract of an electronic health record containing essential healthcare information to support cross-border and unscheduled patient care and can be used in many other scenarios where a patient crosses health information systems, like travel between provinces/states, cities or organizations that use a different Health Information System;

- **Explored new licensing models:** In 2022, the Western Cape Region of South Africa became the first regional member on the African continent to adopt the use of SNOMED CT. In addition, the number of affiliate licences we provide increased substantially in 2022 over the past few years, jumping to 6,050 in 2022 from 2,929 in 2019;

- **Onboarded the Republic of Korea, Australia and the Netherlands to our Managed Service**, enabling those users to easily manage and distribute a release of a SNOMED CT local extension from start to finish. SNOMED International now provides this service to 14 Members;

SNOMED International

2022 Highlights continued

- **Updated the SNOMED CT browser** to enable enhanced search functionality and introduced **SNOMED CT Lookup** to help non-SNOMED CT Members to reference SNOMED CT embedded terminology in patient records;

- **Released Snap2SNOMED,** a mapping tool for community use that enables SNOMED CT users to map existing codes to SNOMED CT. This tool supports interoperability and integration, as well as migration from other terminologies to SNOMED CT, and enables data analytics, as well as identification of gaps in SNOMED CT;

- **Released an interactive SNOMED implementation roadmap tool** that helps ensure Members plan for implementations that support their goals and objectives;

- **Published Expression Constraint Language (ECL) 2.0,** the first version of ECL specifically designed to support querying over historical patient records, which may contain inactive codes;

- **Released a number of enhancements to the SNOMED CT Authoring Platform,** including a Validation Framework Browser and Release Notes Management tool, all focusing on improving and ensuring the quality of SNOMED CT; and

- **Developed a beta version of a tool that allows less advanced Members and affiliates to distribute SNOMED CT content.** The tool produces a simple extension based on the output of existing tools, like Snap2Snomed, Weblate, or the Refset Tool. This first version is focused on maps; the next version will add support for translation content.
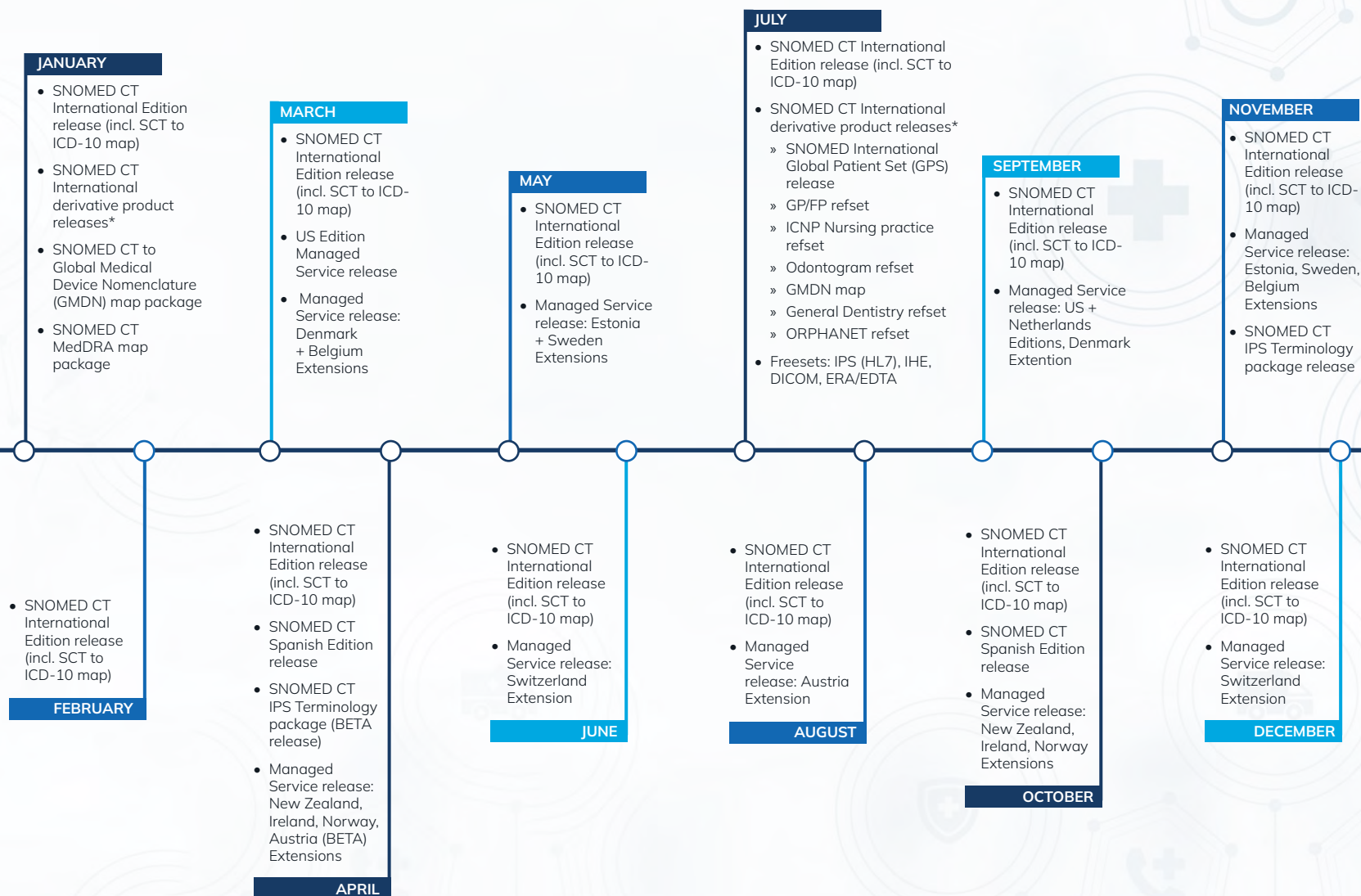
i **Learn more** about the SNOMED CT Implementation Roadmap Generator

i **Learn more about responding to emerging global health threats:** In the June 2022 SNOMED CT International release, we included updated human monkeypox (disorder) content and new concepts, including disorders, exposure and viral nucleic acid, to support reporting.

Release timeline

JANUARY
- SNOMED CT International Edition release (incl. SCT to ICD-10 map)
- SNOMED CT International derivative product releases*
- SNOMED CT to Global Medical Device Nomenclature (GMDN) map package
- SNOMED CT MedDRA map package

MARCH
- SNOMED CT International Edition release (incl. SCT to ICD-10 map)
- US Edition Managed Service release
- Managed Service release: Denmark + Belgium Extensions

MAY
- SNOMED CT International Edition release (incl. SCT to ICD-10 map)
- Managed Service release: Estonia + Sweden Extensions

JULY
- SNOMED CT International Edition release (incl. SCT to ICD-10 map)
- SNOMED CT International derivative product releases*
  - » SNOMED International Global Patient Set (GPS) release
  - » GP/FP refset
  - » ICNP Nursing practice refset
  - » Odontogram refset
  - » GMDN map
  - » General Dentistry refset
  - » ORPHANET refset
- Freesets: IPS (HL7), IHE, DICOM, ERA/EDTA

SEPTEMBER
- SNOMED CT International Edition release (incl. SCT to ICD-10 map)
- Managed Service release: US + Netherlands Editions, Denmark Extention

NOVEMBER
- SNOMED CT International Edition release (incl. SCT to ICD-10 map)
- Managed Service release: Estonia, Sweden, Belgium Extensions
- SNOMED CT IPS Terminology package release

FEBRUARY
- SNOMED CT International Edition release (incl. SCT to ICD-10 map)

APRIL
- SNOMED CT International Edition release (incl. SCT to ICD-10 map)
- SNOMED CT Spanish Edition release
- SNOMED CT IPS Terminology package (BETA release)
- Managed Service release: New Zealand, Ireland, Norway, Austria (BETA) Extensions

JUNE
- SNOMED CT International Edition release (incl. SCT to ICD-10 map)
- Managed Service release: Switzerland Extension

AUGUST
- SNOMED CT International Edition release (incl. SCT to ICD-10 map)
- Managed Service release: Austria Extension

OCTOBER
- SNOMED CT International Edition release (incl. SCT to ICD-10 map)
- SNOMED CT Spanish Edition release
- Managed Service release: New Zealand, Ireland, Norway Extensions

DECEMBER
- SNOMED CT International Edition release (incl. SCT to ICD-10 map)
- Managed Service release: Switzerland Extension

*The derivative products above that are stated for release in January and July are dependent dates and not confirmed published dates. These derivative products may be released in future International Edition monthly releases within the calendar year.

Content enhancements
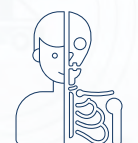
SNOMED CT INTERNATIONAL EDITION

12* monthly releases	359,658 total active concepts	7,568 changes	11,998 added concepts

* 2022 marked the first year SNOMED International delivered 12 monthly releases of the SNOMED CT International Edition Release

ANATOMY

- **Developed and implemented** the concept model for the cardiovascular system; updated descriptions for tendon-related concepts; implemented the concept model for cardiovascular and nervous systems; made corrections and improvements to the organization of veins of: intercostals, hemorrhoidal plexus, bronchi and lungs.

CANCER SYNOPTIC REPORTING

- **Advanced** the Cancer Synoptic Pathology Reporting project by developing and validating SNOMED CT Observables coding for the anatomic and molecular pathology observations made by pathologists in diagnosing cancer.

DEVICES

- **Added new concepts** and subsequently mapped them based on changes to the Global Medical Device Nomenclature (GMDN) as appropriate for inclusion in SNOMED CT; and

- **Modified and inactivated concepts** and removed them from map records for quality assurance and patient safety.

DRUGS

- **Added 400+ new drug concepts** provided by Member countries;

- **Launched** the Drug Content Analysis Working Group at SNOMED CT Expo 2022. The group, formed to improve coverage of clinical drug concepts in the SNOMED CT International Release, began its work by facilitating a gap analysis;

- **Aligned drug content** with World Health Organization (WHO) Essential Medicines List;

- **With a new collaboration partner,** SNOMED International created new content to match existing European Directorate for the Quality of Medicines and Healthcare (EDQM) dose forms to support a future mapping project; and

- **Added roles** to distinguish therapeutic, non-therapeutic, and non-medicinal products.

Content enhancements continued

DIETETIC/NUTRITION CONTENT

- Following a 2022 collaboration agreement between IDDSI and SNOMED International, the organization's Nutrition Care Process Terminology (NCPT) Clinical Project Group:

  » Reviewed and confirmed remaining NCPT content of approximately 1,000 concepts for addition to the SNOMED CT International release; and

  » Provided feedback on the inclusion of new concepts representing the IDDSI framework for consistency of food.

i **Learn more** about our IDDSI collaboration

INTERNATIONAL LEAGUE AGAINST EPILEPSY (ILAE)

- In 2022, we announced a collaboration agreement between the ILAE and SNOMED International. Following that, we began working on updates to concepts to improve seizure and epilepsy content within the relevant sub hierarchies (e.g. 313287004 |Seizure related finding (finding)| and 84757009 |Epilepsy (disorder)| (excluding Orphanet content).

i **Learn more** about our ILAE collaboration

KAISER PERMANENTE

- As part of our ongoing agreement with Kaiser Permanente to accept CMT content and incorporate it into SNOMED CT, over 2022, we authored 1,151 concepts.

RARE DISEASES

- Worked with INSERM, the Institut national de la santé et de la recherche médicale, to improve the visibility of rare disease content in SNOMED CT, adding 785 new maps for the July 2022 production release, 503 of which were new concepts. Orphanet, managed by the INSERM unit dedicated to rare diseases knowledge, maintains the Orphanet nomenclature of rare diseases (ORPHA codes) and provides a multilingual database of information related to rare diseases and orphan drugs.
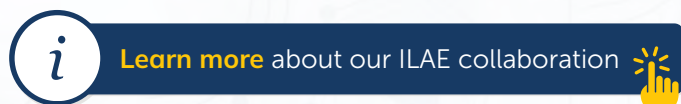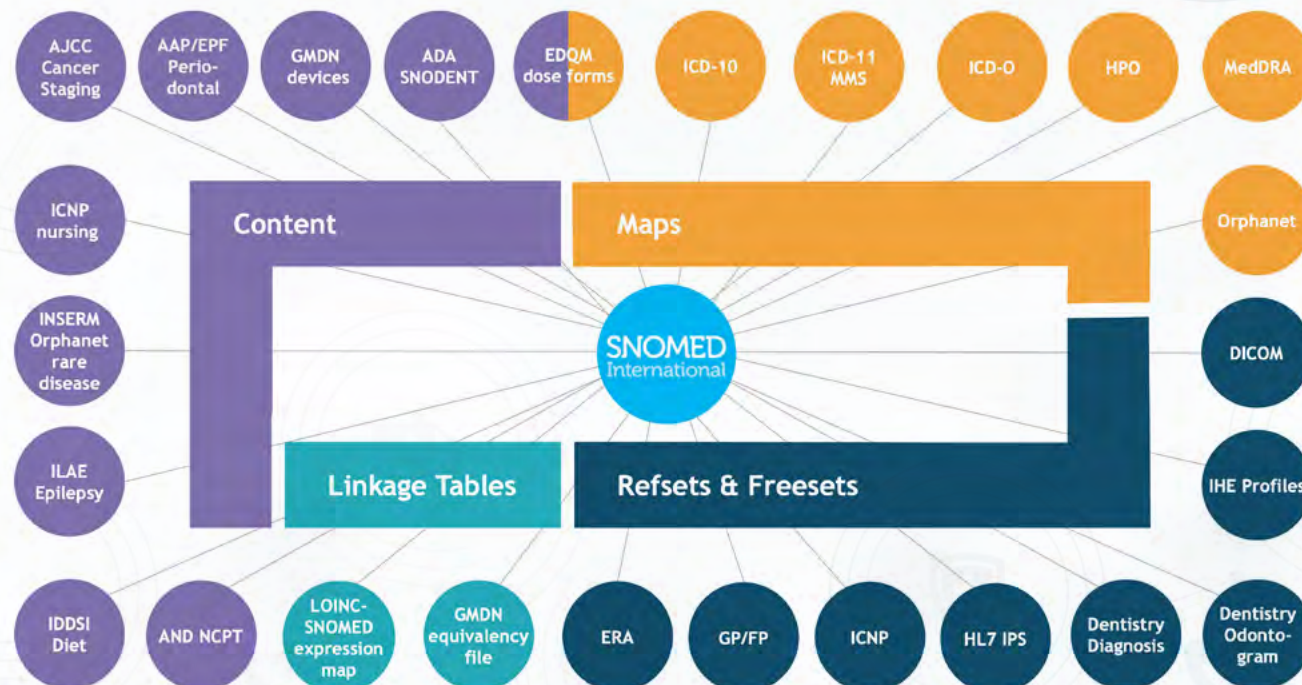
TRADITIONAL MEDICINE

- Made additional enhancements to the Traditional Medicine sub-ontology branch of the Community Content browser, including:

  » Development of patterns for clinical findings and body parts;

  » Provided guidance to India and Korea on requirements-gathering for the creation of subontologies; and

  » Reviewed all of the Traditional Medicine pattern diagnoses in ICD-11 and began modeling those diagnoses in the clinical finding hierarchy in the subontology.

Content partners and collaborations

SNOMED International, as part of its 2020-2025 strategy, has committed to acting as a central hub, or terminology integrator, for healthcare terminologies, and to pursuing alliances and partnerships with other international standardization bodies to harmonize healthcare terminology across multiple domains.

Throughout 2022, we continued to make excellent progress on these efforts, with the announcement of six additional partnerships or collaborations, all while building on existing formal and informal agreements and collaborations.

CONTENT PARTNERS AND COLLABORATIONS

2022 Activities: A snapshot

ACS / AMERICAN COLLEGE OF SURGEONS

Entered into a licensing agreement with the ACS to include agreed-upon American Joint Committee on Cancer (AJCC) references in SNOMED CT. This agreement enables SNOMED International to include updated AJCC staging concepts critical to understanding cancer and treating patients, while eliminating outdated AJCC content no longer relevant to clinical care within SNOMED CT.

ADA®

Finalized a new agreement with the ADA with the goal of maintaining alignment between SNOMED CT and the Systematized Nomenclature of Dentistry (SNODENT), a dentistry-specific terminology

edqm

Signed a collaboration agreement between EDQM and SNOMED International, with the goal of supporting mapping between EDQM standard terms and SNOMED CT for dose forms

AMA

Completed the validation of the AMA's Current Procedural Terminology (CPT) to SNOMED CT cross maps to improve integration between both terminologies by producing solutions for governments, hospitals, clinical practices, researchers and other stakeholders to help organize and utilize healthcare data better

i **Learn more** about our collaboration with the American College of Surgeons

i **Learn more** about our collaboration with EDQM

i **Learn more** about our collaboration with the AMA

CONTENT PARTNERS AND COLLABORATIONS

2022 Activities: A snapshot continued

Became a liaison member of CEN TC 251 Health Informatics, which enables SNOMED International to participate in CEN's standards development and support European members

Signed a renewed agreement with **Regenstrief Institute** designed to facilitate use and interoperability of the terminology standards produced by both organizations, reducing current and potential duplication

Working on a new agreement with **GMDNA**, which provides terms that name and group all medical device products and can be used to exchange medical device information and support patient safety

Signed a collaboration agreement with IDDSI that will enable us to incorporate IDDSI Framework v2.0 content into SNOMED CT for use in electronic health records globally
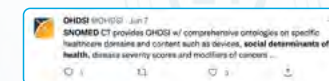
Learn more about our collaboration with LOINC by Regenstrief

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OVERVIEW MEMBERS PRODUCTS + SERVICES ADOPTION INNOVATION + ENABLING SUCCESS GOVERNANCE FINANCIALS

CONTENT PARTNERS AND COLLABORATIONS

2022 Activities: A snapshot continued

- Signed a five-year agreement with the **ILAE** that will contribute to global improvements in care and services for people with epilepsy; and
- Began updating and adding to existing epilepsy-related content in SNOMED CT

Completed a five-year collaborative agreement that gives **OHDSI** and its user community comprehensive ontologies on specific healthcare domains and content and provides SNOMED International information and feedback on clinical validation, frequency of use data, and validation of SNOMED CT content modeling

2022 brought new opportunities to collaborate with the WHO on a number of fronts. We:

- Added 3,631 concepts to the **WHO ICD-10 map** throughout our 12 monthly releases;
- Completed an automated SNOMED CT to ICD-11 Morbidity and Mortality Statistics (MMS) map; and

- Completed two pilot maps between SNOMED CT and **ICD-11 Foundation** (each way) for a subset of ICD-11 content; and
- Published 1,000 new ICD-11 concepts.

With content ownership residing with ICN, SNOMED International published the second International Classification for Nursing Practice (ICNP) refset on behalf of **ICN** following our 2020 collaboration agreement; the first refset was published in 2021

Learn more about our collaboration with OHDSI

Learn more about our collaboration with ILAE

SNOMED International

REGIONAL SUCCESS STORY:

Multinational European research study to improve the prevention and treatment of COVID-19 makes significant contributions to SNOMED CT and other terminologies

At the outset of the COVID-19 pandemic, health systems and researchers worldwide quickly realized they needed to be able to respond to global emergencies more quickly and effectively while ensuring those solutions remain evidence-based. To meet that challenge, ORCHESTRA, a multinational, three-year research project funded by the European Commission, was launched in 2020. The project's objectives were to develop evidence-based recommendations for COVID-19 prevention and treatment, focusing on at-risk populations, and to understand why and how the disease spreads, what public health measures contain it, how well vaccines work and the impact of long COVID. In addition, the researchers wanted to create a model for responding to future public health emergencies.

Led by the University of Verona, the project involved 26 partners from 15 countries: Argentina, Belgium, Brazil, Congo, France, Gabon, Germany, India, Italy, Luxembourg,

Netherlands, Romania, Slovakia, Spain, Venezuela, eight of which are SNOMED International Members.

The work required the researchers to define medical terms, laboratory values and other measurements and concepts in three ORCHESTRA studies and to map semantic representation of those concepts to standard terminology codes provided by organizations such as SNOMED International, Logical Observation Identifiers Names and Codes (LOINC), Anatomical Therapeutic Chemical (ATC) and International Statistical Classification of Diseases and Related Health Problems (ICD). They identified 743 variables commonly used in two of the three prospective ORCHESTRA studies, submitted new concept requests to various Standards Development Organizations, and contributed to existing terminologies to create consistent semantic representation of more than 2,500 COVID-19-related variables taken from the three ORCHESTRA studies.

That mapping enabled them to then create a pool of standardized variables that could easily be merged with the same elements of new ORCHESTRA studies or with elements of external studies using the same terminologies.

In addition to the insights into COVID-19, the value for the larger scientific research and medical community is the elimination of the arduous process of data cleaning and pre-processing, making it faster and easier to merge and analyze data. For patients, it means increased interoperability across care providers, which contributes to better patient outcomes.

To learn more about the ORCHESTRA project, visit https://orchestra-cohort.eu/.

This article was adapted from Harmonization and standardization of data for a pan-European cohort on SARS- CoV-2 pandemic, published in npj |digital medicine

Adoption

Increasing adoption of SNOMED CT is one pillar of our 2020-2025 strategy. Adoption, which covers a range of areas, including education, onboarding, implementation support, the development of supporting tools and reference sets, vendor engagement and industry partnerships, touches most of our stakeholder groups. In 2022, we advanced in the following areas.

CASE FOR INVESTMENT

Our **Case for Investment interactive platform** provides evidence that SNOMED CT adds measurable value to a broad range of primary and secondary health processes leveraging SNOMED CT encoded data to deliver improved patient outcomes.

i **Learn more** about our Case for Investment

Focus on social care

ADOPTION EFFORTS INCLUDE IDENTIFYING SOCIAL CARE PRIORITY AREAS

SNOMED International is committed to supporting the reduction of health inequity through developing and managing social care content within SNOMED CT's clinical terminology. Over the course of 2022, SNOMED International continued to hone its focus on social care content in SNOMED CT, with the goal of driving improvements in patient outcomes and meeting the needs of integrated health and social care systems.

Highlights in this area include:

- Engaging SNOMED International Members to identify three priority areas for development:
- Older people including home care/support, long-term care and palliative care focusing across healthcare and social care;
- People with mental health problems; and
- People with alcohol and substance misuse problems.

The organization also launched a social care content group comprising SNOMED International Members and other global experts to engage subject matter experts and define SNOMED CT content requirements.

Learn more about our committment to social care content in SNOMED CT
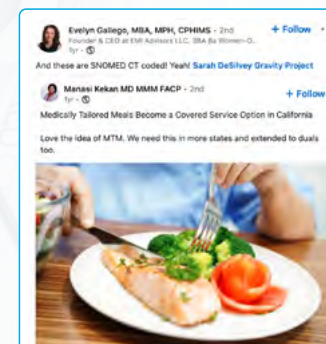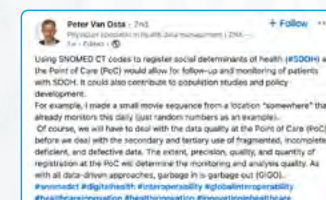
Engaging our stakeholders

GLOBAL STAKEHOLDER ENGAGEMENT

In 2022, we focused on optimizing the opportunities for our stakeholder groups to engage with us and each other both in-person and on-line, whether via our regular events – twice-yearly business meetings, annual SNOMED CT Expo and year-round clinical, research and implementation-focused webinars – or via our participation in industry events and conferences, where we provided thought leadership and engaged with industry and healthcare leaders around the globe.

LISTENING TO OUR MEMBERS

Each year SNOMED International connects with its Members to better understand how well the organization is meeting their needs. In 2022, 100% of our Members who completed the survey told us it's easy to do business with SNOMED International. The survey also revealed that SNOMED CT is increasingly being used for research and analytics purposes, while primary/acute/specialist care continues to be the main use.

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ENGAGING OUR STAKEHOLDERS

EVENTS WE PARTICIPATED IN GLOBALLY THROUGHOUT 2022

AMERICAS

- Sponsored the **Argentina Digital Health Forum** to build awareness of SNOMED CT and its benefits to a mostly Spanish-speaking Latin American audience;

- Engaged with attendees of the **Asociación HealthTech México** on the topic of interoperability;

- Connected with collaboration partners, fielded SNOMED CT-HL7 collaboration questions and attended sessions at **HL7 FHIR Dev Days International;**

- SNOMED International CEO Don Sweete delivered a keynote address at **Experiencias de Transformación Digital en Salud de México Forum Salud Digital** conference and discussed the potential benefits of adopting SNOMED CT in Mexico with a number of the country's healthcare leaders, government officials and industry members;

- Made valuable connections and engaged with a number of startup organizations focused on interoperability and innovation at **HLTH 2022** in Las Vegas;

- Explored issues such as "techquity," the strategic development and deployment of technology to advance health equity, and other topics, including artificial intelligence and machine learning, at **ViVE 2022 IT Healthcare Conference** in Miami; and

- Promoted awareness of SNOMED CT to delegates and industry professionals at **HIMSS 2022** in the U.S., one of the key annual events for many of our stakeholders.

ENGAGING OUR STAKEHOLDERS

EVENTS CONTINUED:

EUROPE, MIDDLE EAST AND AFRICA

- Engaged with our European stakeholder community at **HIMSS Europe** (Finland); discussed with those stakeholders a number of Europe-specific issues, including the European Union-funded subsidies available for European countries wishing to implement SNOMED CT and other Europe-wide digital health projects such as the Towards European Health Data Space project to develop European principles for the secondary use of health data, and highlighted current European SNOMED CT implementations and projects;

- Discussed onboarding plans with the United Arab Emirates at **Arab Health 2022** in Dubai;

- Provided ongoing implementation support to Israel, a SNOMED International Member for a decade;

- Engaged with delegates at **Nice Medical Informatics Europe 2022** where we presented on the practical use of SNOMED CT to analyze real-world problems and promoted awareness of the European funding model for SNOMED CT; and

- Laid the groundwork for future discussions of SNOMED CT adoption at **HIMSS Eurasia 2022** in Turkey by establishing valuable connections with government and industry officials; educated delegates about SNOMED International and its role in the region's current digital health landscape.

ASIA PACIFIC

- Engaged with SNOMED International Members and others at the **2022 18th Annual Australian eHealth Research Colloquium,** where we highlighted the role of SNOMED International and SNOMED CT in the digital health space and in promoting interoperability, and the benefits for patients, providers, health systems and others;

- Participated in the **New Zealand Open Forum,** where we provided SNOMED International updates, collaborated with the New Zealand National Release Centre to share news of the launch of consumer friendly terms in New Zealand's national extension and engaged with Health New Zealand officials and other stakeholders; and

- Engaged with Asia Pacific stakeholders and participated in a panel discussion at the Asian eHealth Information Network (AeHIN) hosted webinar *AeHIN Hour - Introduction to Terminology Services* in November 2022.

SEPT 29-30, 2022

SNOMED CT Expo 2022

2022 was a year of firsts for SNOMED International: For the first time since 2019, SNOMED International hosted its annual two-day Expo in-person and online. It was also the first time SNOMED International has offered both options simultaneously. Topics ranged from natural language processing to artificial intelligence to the International Patient Summary, translations, and many others.

EXPO HIGHLIGHTS

642 in-person and online attendees

4,400+ individual sessions attended online and in-person

47 countries represented

62 sessions across four streams, including "Advances in Research and Innovation", new for 2022
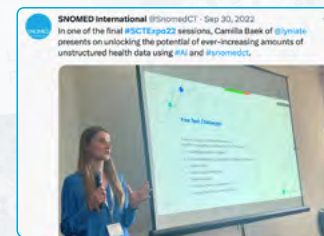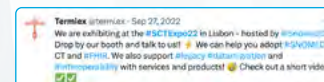
35+ hours of content

14 e-posters

2 keynotes

4 tutorials

View our SNOMED CT Expo 2022 YouTube playlist

Expanding and strengthening our industry partnerships

SNOMED International works with its vendor partners to ensure the long-term success of the development, adoption and implementation of SNOMED CT, a clinical terminology designed to be integrated into electronic health records and health data analytics platforms, globally. One way we seek to connect our vendor partners to our user community is by including them as an important part of our annual Expo and by supporting their efforts at our events to build awareness of their SNOMED CT enabled or supportive products and services. In 2022, our Expo Exhibitor and Sponsor Hall featured the most participants to date.

2022 HIGHLIGHTS

- Executed an Apple agreement in which Apple is contributing to SNOMED CT its patient-friendly terms, which will be included in the community content area of the clinical terminology.

- Broadened our focus from mature vendors to include startups, with the goal of facilitating the integration of SNOMED CT into their products and services and educating them on the benefits of integrating the terminology at the early development stages of software development; established new connections with startups at the ViVE and HLTH 2022 conferences, both of which focus on digital health innovation and startups.

Visit the SNOMED CT marketplace, where vendors that integrate SNOMED CT into their products and services can exchange business information with potential purchasers

EXPANDING AND STRENGTHENING OUR INDUSTRY PARTNERSHIPS

2022 HIGHLIGHTS CONTINUED

- Finalized an agreement with Babylon Health for a regional licensing agreement for South East Asia, allowing the use of SNOMED CT across seven non-Member countries in the region.

- In an excellent example of how SNOMED International works with its stakeholders and Members and facilitates engagement across and among those groups, we worked with India-based SRIT, an electronic government and ICT systems integrator, to use SNOMED CT to code clinical data as part of Qatar's new federal insurance system.

- Joined the VCI (Verifiable Clinical Information) coalition to improve international adoption of SMART Health Cards by making the SNOMED International terminology standards for Covid-19 vaccines available from the SMART Health Cards GitHub repository under a Creative Commons license. VCI is a voluntary coalition of public and private organizations committed to empowering individuals with access to verifiable clinical information, including a trustworthy and verifiable copy of their vaccination records in digital or paper form using open, interoperable standards. Other coalition partners include Mayo Clinic, MITRE Corporation, Microsoft, The Commons Project Foundation, Evernorth, CARIN Alliance, UC San Diego Health, and Apple.

SNOMED International

Our clinical, research and implementation communities

Throughout the year, we continued to develop and foster our stakeholder communities of clinicians, researchers and implementers. These SNOMED International-supported groups provide a framework to facilitate discussion among these community members and other stakeholders focused on specific specialties, domains or topic areas, and dialogue between stakeholder communities and SNOMED International. Members of these groups participate in our twice-annual business meetings.

In 2022, we supported more than 20 groups across our clinical, content, technical, research, and implementation communities:

- **8 Clinical Reference Groups (CRGs) across 12 domain areas:** In 2022, the organization revitalized the Pathology and Lab Medicine CRG and launched a new **CRG for Eyecare**;

- **6 Advisory Groups** that influence the ongoing development and maintenance of SNOMED CT in the areas of content, modeling, terminology release, software, tooling and e-learning. These groups contribute to realizing SNOMED International's mandate, adapting quickly as organizational needs evolve; and

- **8 Working/Project Groups:** These groups are linked to the CRGs and are focused on delivering agreed-upon work items and providing clinical validation for derivative products.

In 2022, we refreshed our Implementation Support Portal, where users can access everything they need wherever they are in their implementation journey, including education, tools, training, documentation, help and an online user forum

i **Learn more** about our Reference Groups

Clinical

Research

Implementation: User Support

▶ **View** playlists on YouTube:

Implementation

Research

Clinical

Our communities continued:

ENGAGING OUR RESEARCH COMMUNITY

Following many years of informal collaboration with researchers and research organizations, in 2022, SNOMED International cemented the role of researchers as one of its key stakeholder communities. Over the past year we created a dedicated online space for researchers, and, at the SNOMED CT 2022 Expo, introduced a research-focused stream (Advances in Research and Innovation) and hosted a research-focused workshop.

SNOMED CT WEB SERIES

We also offer free-to-attend regular clinical, research and implementation webinars throughout the year, which are hosted by clinicians, distinguished researchers, representatives from the SNOMED CT community, and SNOMED International staff members, all of whom share their real-world experiences with the terminology.

Over the year, more than 560 participants attended the nine webinars that we hosted as part of the web series.

Education

We offer a range of SNOMED CT-focused courses, certifications, educational materials and related documents via the SNOMED International e-learning platform. We also partner with other education providers around the globe and participate in activities such as guest lecturing at universities.

One of the main education highlights of 2022 was the launch of our revamped Foundation course in English, a self-paced course that provides a broad overview of many SNOMED CT-related topics and is a prerequisite for many other SNOMED CT courses.

Learn more about our educational offerings

Number of graduates since inception	3364 SNOMED CT Foundation Course (English)	363 Curso de Fundamentos (Spanish)	723 SNOMED CT Implementation Course	254 SNOMED CT Authoring Level 1 Course	80 SNOMED CT Authoring Level 1 Certification	27 SNOMED CT Authoring Level 2 Course	92 SNOMED CT Terminology Services Certification Course + Exam

Innovation

Innovation drives product enablement, producing Member and stakeholder value. In 2022:

- **SNOMED International initiated a project** to demonstrate the full potential of how SNOMED CT can benefit all stakeholders when embedded in an open source EMR. Once completed, and leveraging anonymized patient data, the numerous capabilities enabled by SNOMED CT will be showcased;

- **Joined the** Verifiable Clinical Information **coalition** to lower the barrier for verifiers and help improve international adoption of SMART Health Cards by making the SNOMED international terminology standards for Covid-19 vaccines available from the SMART Health Cards GitHub repository under a Creative Commons license; and

- **Delivered the second iteration** of the SNOMED CT Data Analytics Demonstrator, enabling users to query over clinical data that contains SNOMED CT codes and take advantage of the rich semantic definitions included in SNOMED CT. The demonstrator also provides users with deep insights into the analytics capabilities of the clinical terminology.

- **Embarked on an exciting new area of work** for SNOMED International with the initiation of the Entity Linking Challenge project, in which teams of experts will be invited to develop machine learning models that can link free-form clinical text to concepts in the SNOMED CT ontology. More news on the Challenge and when it will start will be announced in 2023.

- **Defined in collaboration** with the American Medical Association (AMA) a Challenge competition in which vendors will use a combined dataset that includes both SNOMED CT and the AMA's Current Procedural Terminology (CPT) to demonstrate improved clinical outcomes and healthcare economics through advanced data analytics.

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Enabling Success

Diversity, Equity and Inclusion
SNOMED International strives to foster an environment where everyone feels respected, valued and empowered

The SNOMED International operations ecosystem comprises the finance and corporate services, communications and human resources functions, each of which performs distinct but complementary roles that support the ever-evolving SNOMED CT stakeholder and product and services landscape. These teams also play an essential role in supporting the successful execution of the organization's five-year strategy.

2022 HIGHLIGHTS

- Our **Finance and Corporate Services** approach is to ensure we meet our finance and governance commitments and manage risk in line with industry gold standards. The team supported and managed all governance interactions with our Members and oversaw the reporting of the organization's strategy and operations. Other 2022 highlights include oversight of the organization's financial health and annual budget process, managing inquiries regarding the European Commission grant funding program for implementing SNOMED CT in European Union countries, and overseeing a 2021 Year Audit with clean results.

- Key activities for **Human Resources**, which continually assesses the skills and strengths of its workforce to ensure the organization is ready for all current and future challenges, include finalizing the SNOMED International Diversity, Equity, and Inclusion Statement, recruiting for roles in a highly competitive and challenging environment and ensuring the organization has the resources, education/training options and policies in place to support a high-performance workplace. In 2022, additional support for staff, such as an employee assistance program, a program to encourage participation in volunteer activities, an annual retreat and other activities which sought to foster engagement and strengthen connections between internal teams throughout the year were implemented.

- SNOMED International's **Communications** function touches all aspects of the organization, both internally and externally. Its role is to support and promote awareness of the organization's offerings and activities by working closely with external organizations and stakeholders in alignment with SNOMED International's overall approach to collaboration. Highlights for 2022 include developing regular multi-channel communications with our universe of stakeholders and executing initiatives to increase engagement with our online presence. In 2022, Communications planned and executed our twice-annual business meetings and SNOMED International's first hybrid online and in-person Expo in Portugal, and supported the organization's participation in a host of external events such as conferences and other engagement opportunities throughout the year.

MEMBER SUCCESS STORY:

Standardized care plans in Norway

In 2002, the government of Norway initiated a reform of the country's health system as part of its efforts to deliver more patient-centred care. Since then, the country, a SNOMED International Member since 2017, has taken a number of steps toward digitizing, standardizing and modernizing the system, part of which included reorganizing its hospitals into four regions.

By the mid-1990s, many Norwegian hospitals had implemented Electronic Health Records (EHR) software. Facilities in three of the four newly drawn regions had opted for the same EHR provider, while those in the fourth region chose an EHR from a different vendor. All of them, however, included a module for standardized nursing care plans. Standardized care plans in nursing address a number of processes and approaches that have made seamless patient care a challenge in many jurisdictions worldwide: paper-based systems, free text notes, a lack of consistency, varying quality, challenges sharing the data with other providers and a lack of process and decision support, to name a few.

Eventually, those local nursing standardized care plans became integrated with the International Classification for Nursing Practice (ICNP). Further, in 2020, the International Council of Nurses signed a collaboration agreement with SNOMED International; in 2021, the first production release

of the integrated nursing terminology was released as a reference set, followed by the second release in July 2022.

A national editorial group of representatives from all four regions, including the Norwegian Nurses Association, the University of Agdir and the Norwegian Directorate of Health, all collaborate on standardizing the care plans in their hospitals' EHRs and updating them every three years. At the time of publication, the country had 40 national care plans, all of which use SNOMED CT hierarchies; an additional 200 regional care plans were being reviewed for national status, with the goal of using the same plans across all levels of care, whether local or national, to ensure the same quality of care no matter where it is provided. The editorial group has also developed a high level of proficiency in using the SNOMED CT browser, which enables them to find relevant SNOMED CT concepts more easily.

The benefits of using standardized care plans, in addition to leading to better patient outcomes, include easier access to updated best practices and better decision support and quality control. Moreover, they are easier to use due to the simple, effective and clear language they use.

As well, although roughly 2,000 ICNP concepts in SNOMED CT have been translated to Norwegian so far, the translation work continues.
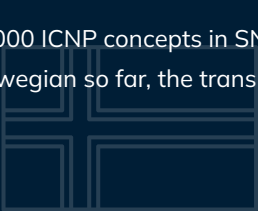
Governance

SNOMED International Members are national government agencies or other bodies that have been deemed suitable for the role by their respective national government. Their responsibilities and authority include appropriately establishing, monitoring, promoting or regulating concept-based systems of clinical terminology for that territory or country.

GENERAL ASSEMBLY

The General Assembly is SNOMED International's highest authority. It ensures that the purpose, objects and principles of the Association are pursued and that the interests of the organization are safeguarded.

MEMBER FORUM

The Member Forum acts as an advisory body to SNOMED International and optimizes collaboration and coordination among Member countries. It is co-chaired by an elected representative of the Member Forum and by a representative from SNOMED International.

Learn more about our Governance Bodies

2022 General Assembly

Note: Some General Assembly and Member Forum representatives are not included in this photo

2022 Member Forum

GENERAL ASSEMBLY AND MEMBER FORUM REPRESENTATIVES AS OF DECEMBER 31, 2022

Argentina
GA: Rodrigo Kreiner
MF: Marina Zanetti and Guillermo Reynoso

Australia
GA: Steven Issa
MF: Kate Ebrill and Linde Martin

Austria
GA: Stefan Sabutsch
MF: Stefan Sabutsch and Stephan Rainer-Sablatnig

Belgium
GA: Tom Van Renterghem
MF: Katrien Scheerlinck and Ingrid Mertens

Brunei
GA: TBD
MF: TBD

Canada
GA: Michael Green
MF: Linda Parisien and Andrea MacLean

Chile
GA: Jorge Pacheco
MF: TBD

Cyprus
GA: Vasos Scoutellas
MF: Vasos Scoutellas

Czech Republic
GA: Irena Rubešová
MF: Irena Rubešová and Miroslav Zvolský

Denmark
GA: Jakob Due
MF: Camilla Wiberg Danielsen and Louise Bie

El Salvador
GA: William Hoyos Arango
MF: Herber Hernandez Trejo

Estonia
GA: Kerli Linna
MF: Krista Kärt and Rutt Lindström

Finland
GA: Juha Mykkänen
MF: Jonna Salonen and Mikko Härkönen

Germany
GA: Stefanie Weber
MF: Christine Haas and Frank Geier

Hong Kong
GA: Vicky Fung
MF: Vicky Fung and Maggie Lau

Iceland
GA: Gudrún Audur Hardardóttir
MF: Gudrun Audur Hardardottir and Ingi Steinar Ingason

India
GA: Lav Agarwal
MF: Gaur Sunder and Manisha Mantri

Indonesia
GA: TBD
MF: TBD

Ireland
GA: Niall Sinnott
MF: Theresa Barry (Co-Chair)

Israel
GA: Boaz Lev
MF: Yael Applbaum

Jordan
GA: Omar I Ayesh
MF: Afnan Jebril

Kazakhstan
GA: Beibut Yessenbayev
MF: Beibut Yessenbayev and Gulnara Akhmetova

Lithuania
GA: Martynas Bieliauskas
MF: Martynas Bieliauskas and Kristina Dienine

Luxembourg
GA: Raffaella Vaccaroli
MF: Olivier Lepanto

Malaysia
GA: Nuraidah binti Marzuki
MF: Muhammad Naufal Bin Nordin and Ahmad Aqram bin Rusli

Malta
GA: Hugo Agius-Muscat
MF: Hugo Agius-Muscat

Netherlands
GA: Herko Coomans
MF: Elze de Groot and Chantal Schiltmeijer

New Zealand
GA: Alastair Kenworthy
MF: Alastair Kenworthy and Tracy Thompson

Norway
GA: Alfhild Stokke (Vice Chair)
MF: Jørn Andre Jørgensen and Trine Angelskår

Portugal
GA: Cátia Sousa Pinto
MF: Filipe Mealha and Sara Russo

R. Armenia
GA: Anahit Avanesyan
MF: Ruzanna Movsisyan and Kristina Sargsyan

R. Korea
GA: Byeon Nam Soo
MF: Park, Hyeoun-Ae and Hwang, Hee

R. Slovenia
GA: Alen Vrecko
MF: Alen Vrecko

Saudi Arabia
GA: Waleed Albahli
MF: TBC

Singapore
GA: Daniel Li
MF: Adele Lee and Wong Jing Jing

Slovak Republic
GA: Pavol Rieger
MF: Monika Geletová and Eva Sabajová

Spain
GA: Belén Delgado
MF: Esther Prieto and Marta Pavón

Sweden
GA: Johanna Åström
MF: Lotti Barlow and Daniel Karlsson

Switzerland
GA: Pero Grgic
MF: Pero Grgic and Annatina Foppa

Thailand
GA: Boonchai Kijsanayotin
MF: Rath Panyowat

United Arab Emirates
GA: TBC
MF: TBC

United Kingdom
GA: Alex Elias (Chair)
MF: Paul Wright

United States of America
GA: Dianne Babski
MF: Patrick McLaughlin and Nick McGraw

Uruguay
GA: Maria Pía González
MF: Rossana Occhiuzzi and Betania Arispe

Management Board

The Management Board has legal and oversight responsibility for the management and direction of SNOMED International. The terms of the appointments are staggered: the longest term is three years; the shortest, one year. Terms are subject to a maximum service of six years in total. Management Board appointments are non-executive director positions which carry legal responsibility for the governance of the organization.

2022 MANAGEMENT BOARD MEMBERS >>

Joanne Burns
(Appointed Chair in September 2020)

Hadas Bitran
(Appointed October 2020;
term completed September 2022)

Matic Meglic
(Appointed April 2017)

Mengchun Gong
(Appointed April 2017)

Andrew Roddam
(Appointed October 2020)

Michael Lewis
(Appointed October 2020)

Isabelle de Zegher
(Appointed October 2020

Learn more about our Management Board Members

SNOMED International

Financial snapshot

The 2022 financial year end was closed out with a clean auditors report supported by robust internal controls, policies and procedures which are reviewed and updated as the organization evolves.

SNOMED INTERNATIONAL INCOME AND EXPENDITURE REPORT (USD)

	2022	2021
Income	14,101,170	12,816,183
Cost of sales	(8,716,204)	(8,222,089)
Gross surplus	5,384,966	4,594,094
Administrative expenses	(3,636,640)	(2,913,425)
Operating surplus/(deficit)	1,748,326	1,680,669
Interest receivable and similar income	120,637	660
Surplus on ordinary activities before taxation	1,868,963	1,681,329
Taxation	0	0
Surplus for the financial year	**1,868,963**	**1,681,329**

The financial information presented within this document does not comprise the statutory accounts of International Health Terminology Standards Development Organisation for the financial years ended 31 December 2022 and 31 December 2021 but represents extracts from them. These extracts do not provide in full, an understanding of the financial performance and position, or financial and investing activities, of the company as the complete Financial Statements.

The statutory accounts for those years have been reported on by the company's auditor and delivered to the registrar of Companies House. The reports of the auditor were (i) unqualified, (ii) did not include a reference to any matters to which the auditor drew attention by way of emphasis without qualifying their report, and (iii) did not contain a statement under section 498 (2) or (3) of the Companies Act 2006. The Financial Statements, including the auditor's report, can be obtained free of charge on request to the company at One Kingdom Street, Paddington Central, London W2 6BD or by email to invoices@snomed.org.

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