

Finnish Strategy for Healthcare and Social Welfare Code Systems provides direction for semantic interoperability

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Abstract

Finland has long been a forerunner in producing structured client data, yet gaps remain in data quality, usability and national guidance. To support interoperable services, the Finnish Strategy for Healthcare and Social Welfare Code Systems 2025–2030 outlines a plan for strengthening semantic interoperability through coherent governance of classifications, terminologies and value sets. The strategy identifies key priorities, including the adoption of international code systems such as SNOMED CT (Systematized Nomenclature of Medicine Clinical Terms), ICD-11 (International Classification of Diseases, version 11), and LOINC (Logical Observation Identifiers Names and Codes). The strategy aims to enhance data quality and reusability while supporting service provision, information management and effective use of health and social welfare data both in Finland and within the broader European context.

Keywords: classification, data accuracy, healthcare, social welfare, terminology, vocabulary, controlled

Introduction

Finland's digital health ecosystem rests on infrastructures like the Kanta Services, national registers, yet documentation practices vary across regions and providers [1]. This inconsistency, along with the use of overlapping or local classifications, leads to uneven data quality that limits analytics and decision support [1]. Internationally, health systems are converging on harmonized terminologies to secure semantic interoperability, a move intensified by the requirements of the forthcoming European Health Data Space (EHDS) [1]. In this environment, code systems, terminologies and value sets are strategic assets that define how

information is recorded, exchanged, interpreted, and governed. Choices in this domain have durable effects on workflows, interoperability, vendor roadmaps, and the trustworthiness of data assets [1,2].

The Classification Strategy 2025–2030 responds by establishing national objectives and a staged roadmap for strengthening semantic interoperability [3]. It emphasizes international-by-default choices, reduction of parallel national solutions, and clear governance for development, maintenance, and use [2,3]. The strategy also sets expectations for EHDS alignment to ensure Finland's preparedness for European-wide data exchange and secondary use [4].

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Materials and methods

The strategy was developed using a multi-method approach combining qualitative elicitation, structured prioritization, and comparative policy analysis. First, 30 semi-structured interviews were conducted with experts from authorities, providers, vendors, standards organizations, and academia, focusing on pain points, feasibility of adoption or replacement, and domain dependencies (diagnoses, procedures, laboratory, medicines, services) [3].

Second, four expert workshops validated findings and prioritized actions using thematic clustering, impact–feasibility matrices, and dependency mapping. Notes and artefacts were synthesized after each session to refine actions [3].

Third, an environmental scan catalogued candidate code systems and their SDOs, examining scope, governance, licensing, maintenance cycles, and mapping resources. A comparative review of nine countries covered governance, adoption of international standards, transition paths (ICD-11, SNOMED

CT, LOINC, ISO-IDMP/SPOR), and resourcing [3]. Public documents and implementation roadmaps were the main sources.

Finally, EHDS materials and anticipated specifications were analyzed to ensure forward compatibility [4]. Inputs were integrated via thematic analysis into ten areas with goals, actions, and indicative timelines [3].

Results

Strategic tasks and prioritization model

The strategy defines three tasks: 1) set national guidance for code systems; 2) ensure alignment with international developments and European regulation; and 3) guide resource allocation [3]. Prioritization follows a tiered model: centrally managed lead projects; actively pursued areas contingent on resources; and an outer monitoring layer where domains are covered through other selected systems [3].

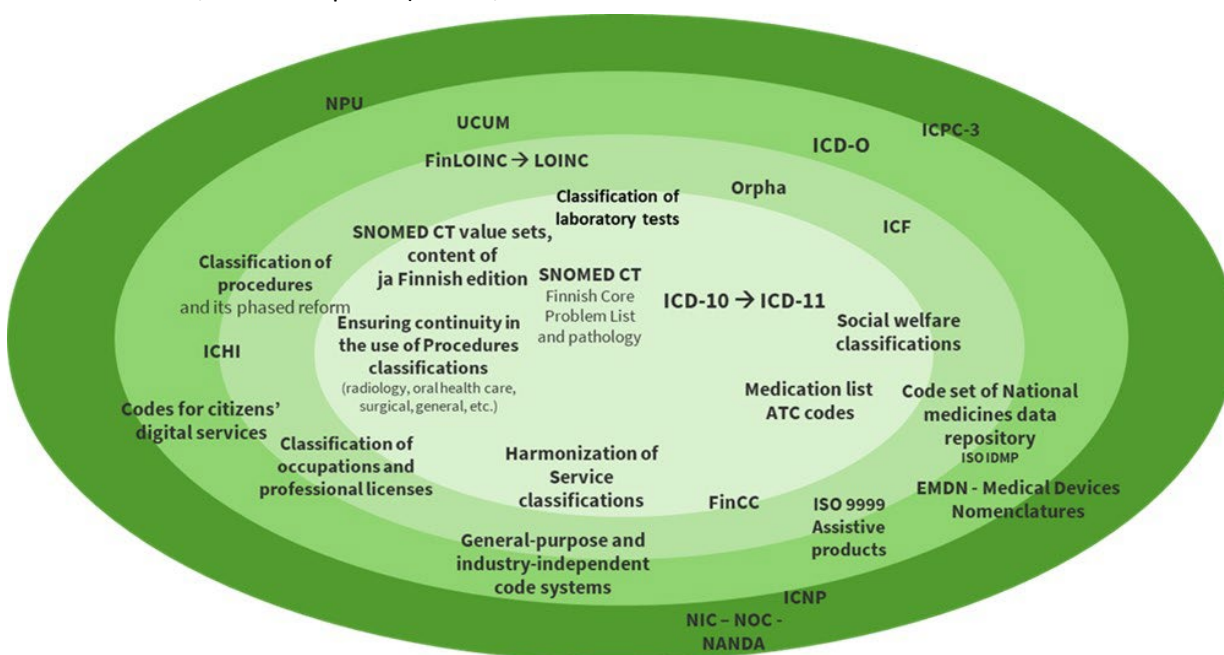


Figure 1. Content priorities for implementing the code systems strategy.

Key focus areas

International systems. Wider adoption of SNOMED CT, the WHO Family of International Classifications, and LOINC is prioritized to improve comparability, reduce duplication of work, and future-proof system development [3,5,6].

Diagnosis and reason-for-encounter. Finland will implement ICD-11, replacing ICD-10. ICD-11's digital design and post-coordination allow more precise clinical recording and better support for analytics and decision support [3,6].

Procedure classification. The current split (general, radiology, dental) and differing technical structures complicate standardization. Goals are a unified maintenance model, streamlined content (reduced duplication, clearer groupings), and international alignment (mappings to SNOMED CT/LOINC and assessment of migration options) [3,5].

Laboratory and Medication Data. A nationally unified laboratory nomenclature will adopt standardized codes, remove duplicates, expand SNOMED CT pathology use, and align with EU exchange standards [3,5].

Service classifications. Given diverse regulatory and administrative needs, full unification is unrealistic. A modular core classification with mappings to authority-specific systems reduces fragmentation while retaining necessary specificity [3].

Medication information. Two national initiatives are pivotal: the Kanta Medication List and Fimea's National Medicines Data Repository. Development will increasingly leverage ISO-IDMP/SPOR for substances, products, dose forms, routes, packaging, and units, while smaller national classifications are steered toward SNOMED CT value sets and ICD-11-compatible indication data [2,3,4].

SNOMED CT maturity. Finland aims to progress within the SNOMED Implementation Maturity Framework, enabling advanced analytics, decision support, and AI applications as integration deepens [3,7].

Cross-cutting actions. The strategy emphasizes avoiding overlaps, defining value sets and mappings, clarifying responsibilities for development and publication, and ensuring multi-channel implementation with broad collaboration [2-4].

Discussion

The strategy represents a significant shift from fragmented national solutions to the structured adoption of international standards [2,3]. This is a multi-year socio-technical change requiring synchronized policy, funding, vendor roadmaps, training, and change management [2]. Phasing is essential: ICD-11 transition must be coordinated with training, legacy data mapping, and analytics updates; ISO-IDMP/SPOR alignment should fit regulatory processes and medication workflows; and SNOMED CT/LOINC expansion should coincide with usability improvements to avoid added burden [3,5-7].

Alignment with EHDS yields benefits improved cross-border care, participation in European research infrastructures, and efficient secondary use via machine-readable data [2,4]. The strategy mitigates these via its prioritization model, explicit ownership, annual monitoring, and an interim evaluation in 2027 to recalibrate timelines [3].

Clear stewardship for each code system, transparent maintenance workflows, quality assurance of mappings, and a national catalogue of value sets support consistency [1-3]. Continuous stakeholder engagement, clinicians, social care professionals, data managers, vendors, and researchers, together

with education and conformance guidance will reduce variability and accelerate maturity [2,3].

Conclusions

The national strategy offers a coherent roadmap to enhance semantic interoperability and data quality in Finland's health and social care [2,3]. By prioritizing internationally maintained code systems (SNOMED CT, ICD-11, LOINC, ISO-IDMP/SPOR), clarifying governance, and phasing implementation, Finland strengthens its readiness for the EHDS while minimizing disruption [3-7]. Success depends on sustained collaboration and realistic resourcing, positioning Finland to leverage interoperable data for safer care, smarter management, and research

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and innovation at both national and European scales [2,4].

A comprehensive list of references is available in the Classification Strategy 2025–2030. <https://urn.fi/URN:ISBN:978-952-408-486-4>.

Acknowledgements

Authors thank all participants of interviews, members of the national steering group for information architecture and experts who have provided comments and suggestions throughout the process of the code systems strategy preparation.

Conflict of interest statement

The authors declare no conflicts of interest.

(EU) 2024/2847 (Text with EEA relevance) PE/76/2024/REV/1. European Union; 2025. <http://data.europa.eu/eli/reg/2025/327/oj>

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