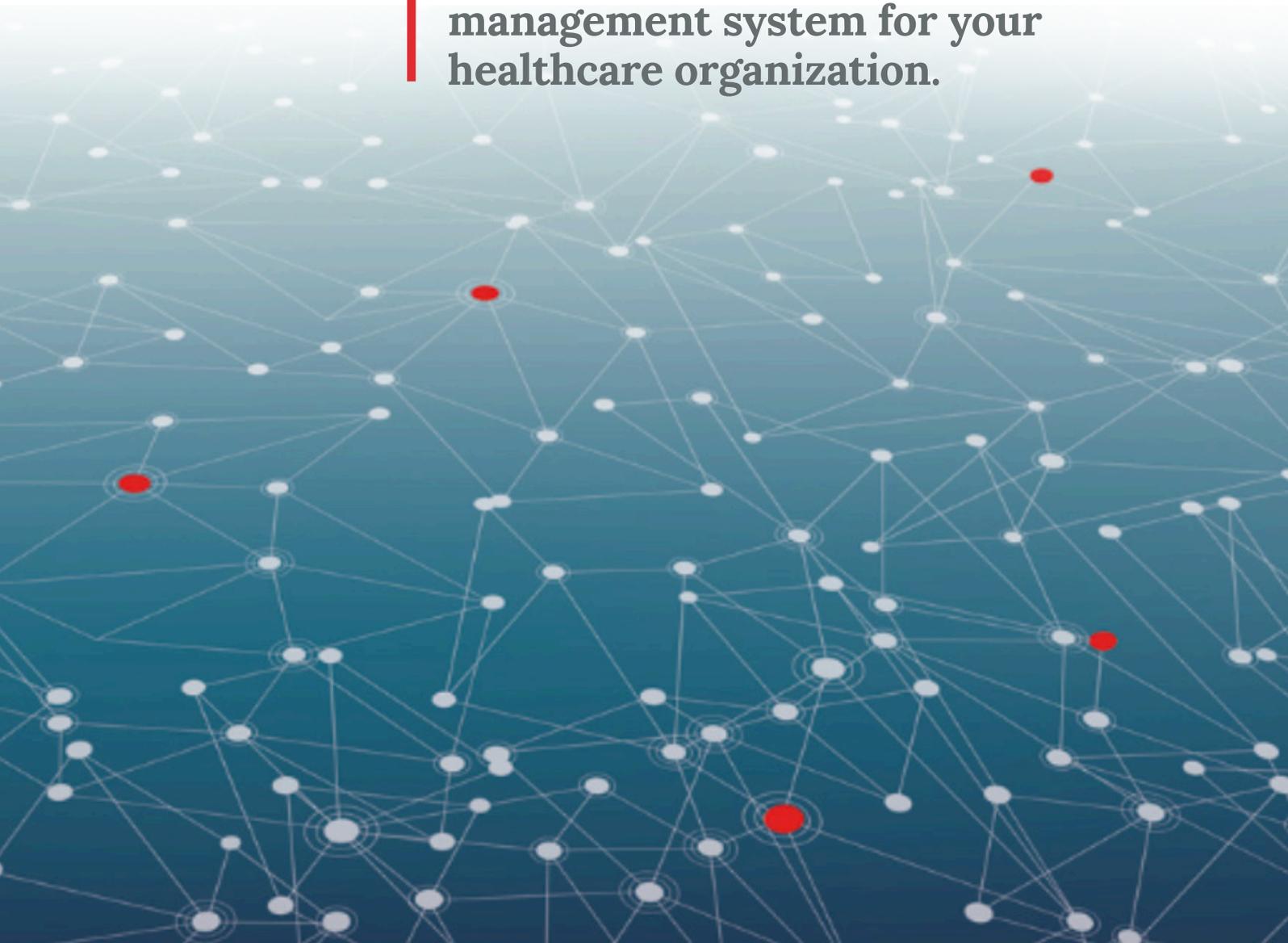# semedy.

The clinical knowledge management system for your healthcare organization.

HEALTHCARE KNOWLEDGE TO THE POINT.

Semedy was founded to develop and deliver innovative software solutions based on semantically robust healthcare information management and highly specialized knowledge management workflows. Semedy structures clinical content and converts it into machine-processable knowledge to support decision making and enable advanced insights.

Semedy offers the "*Clinical Knowledge Management System*" (CKMS) platform, integrated with a powerful semantic reasoning engine. CKMS enables intelligent content engineering and advanced decision support for creators and consumers of clinical content. CKMS was originally developed in partnership with Partners Healthcare in Boston. Semedy has offices in the United States, Germany, and Switzerland.

EXPERT VOICES

"We are very excited about the collaboration with semedy. CKMS enables us to consolidate and expand your clinical knolwedge management activites, ultimately contributing to improved clinical decisions and care."

PARNTERS HEALTHCARE
Roberto A. Rocha, MD, PhD
Clinical Informatics Director, Partners eCare

"Semedy provides a thoughtful, elegant approach to knowledge representation and knowledge managment. The Semedy products are set apart by the core design of their knowledge representation infrastructure that is fully modular, and readily scalable."

KLESIS HEALTHCARE
David F. Lobach, MD, PhD, MS
CEO; Associate Consulting Professor, Duke University

"Semedy brings knowledge management in hospitals to the next level, applying latest semantic technologies and a best-of-breed reasoner. This is a key contribution to quality and success of medical care."
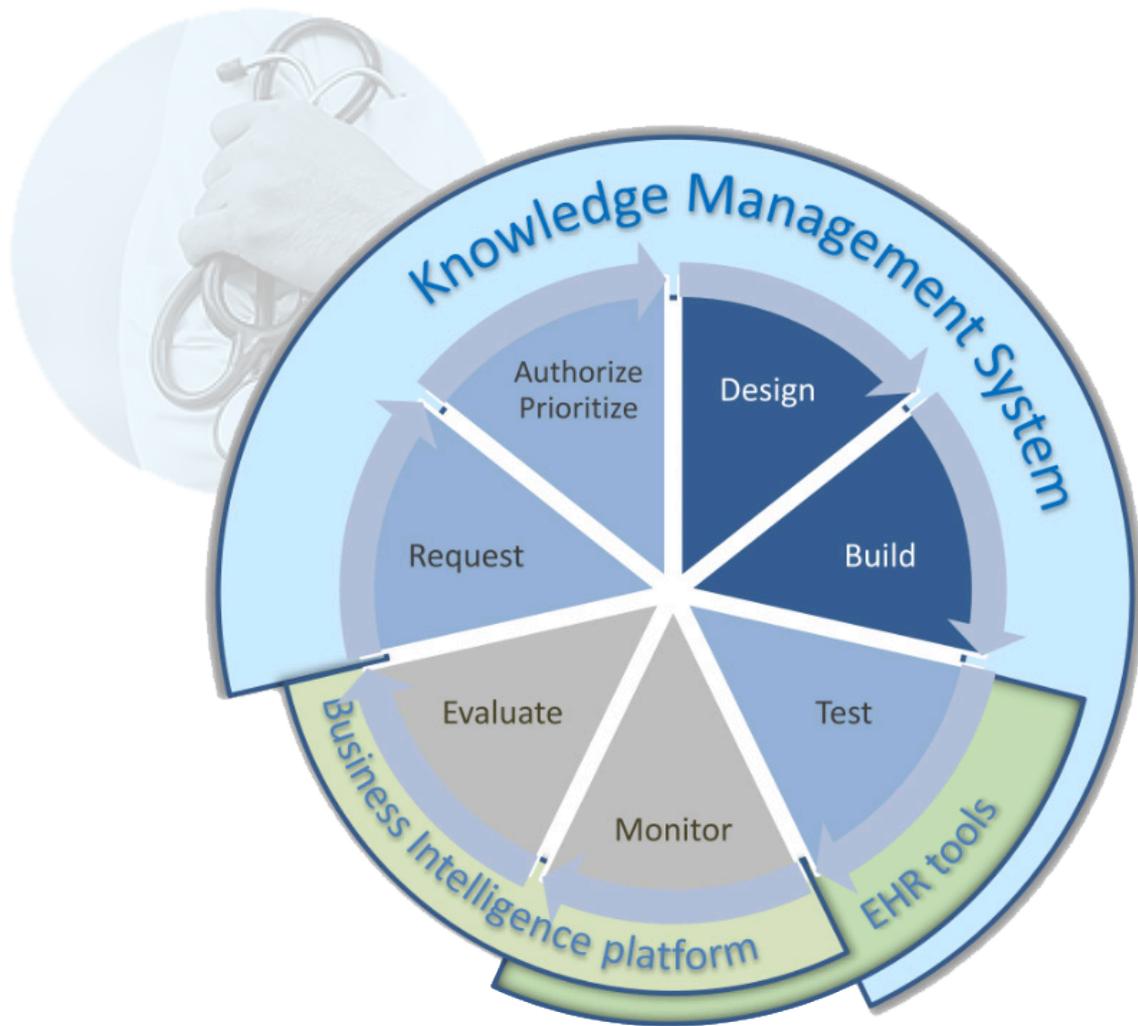
SEMEDY
Professor Dr. Jurgen Angele, CTO

"KNOWLEDGE IS THE FUEL FOR FUTURE HEALTHCARE"

Leading institutions build large amounts of increasingly complex clinical knowledge assets. Asset creators are responsible for maintaining the accuracy and transparency of the knowledge. Creators have to constantly update knowledge assets, link them to external reference sources, and maintain referential integrity throughout the curation lifecycle. Failing to do so leads to inappropriate or sub-standard patient care.

Proper knowledge management (KM) requires standardized processes for regularly acquiring and integrating up-to-date knowledge, including proactively reviewing, maintaining, and monitoring assets found within systems used within and across institutions. Proactive monitoring enables content creators and consumers to continuously refine the knowledge engineering lifecycle. KM processes are essential to prevent content malfunctions and to assess the effectiveness of knowledge-driven interventions on clinical outcomes.

Knowledge Management System

- Authorize Prioritize
- Design
- Request
- Build
- Evaluate
- Test
- Monitor

Business Intelligence platform

EHR tools

THE PROCESS

Knowledge assets are created through a collaborative process between knowledge engineers and domain experts. Each collaboration phase is fully supported by CKMS via specialized tools that expedite authoring, review, and management of new and existing knowledge assets. Semedy′s CKMS interacts with EHR systems and Business Intelligence (BI) tools to support and streamline the knowledge asset lifecycle. Focusing on the design and build phases, CKMS also supports request, authorization, prioritization, and test phases, while interacting (exporting/importing) assets to/from EHRs and BI systems to monitor and evaluate the utilization and effect of knowledge-driven interventions. CKMS serves as a central unified repository for all types of knowledge assets, ranging from taxonomies and ontologies, to complex assets, such as information models, order sets, and event-condition-actions rules. CKMS provides a generic and flexible approach to support the evolution of content without breaking essential relationships and interdependencies among assets.

CONTENT INTEGRITY

At each lifecycle step, CKMS guarantees the integrity of the existing knowledge assets. CKMS only permits operations that do not violate the integrity of related knowledge assets. The system supports customized models and processes that ensure complete semantic interoperability. Several integrity checks are included in CKMS, but customers can always extend models, processes, and also create custom integrity checks. The embedded inference engine ensures semantic integrity and consistency of knowledge assets. Semantic integrity checks verify existing constraints, such as required characteristics to identify assets as members of a certain class, or validate property-value interdependencies to guarantee expected meaning.

> **"TRACING OF KNOWLEDGE ASSET EVOLUTION: SIMPLE AND MANAGEABLE."**

SEARCH & NAVIGATE

As the number of knowledge assets in CKMS grows, the need for sophisticated search features increases, including intuitive options to find and retrieve related content quickly and efficiently. CKMS displays results preserving knowledge asset links, allowing users to traverse relationships and easily navigate through the content.
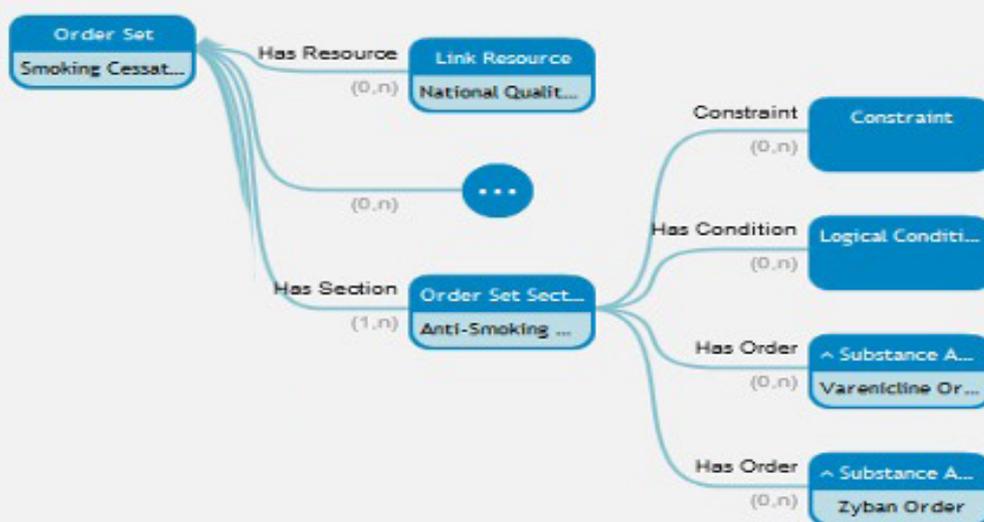
For example, a graphical visualization (above) presents a knowledge asset an all its connected assets.

CREATE & MAINTAIN CONTENT

CKMS provides an integrated set of features to edit, manage, and link knowledge assets created locally or imported from external sources. Assets can be efficiently imported and exported using the CKMS Content Integrator.

Users can share responsibilities for knowledge assets, promoting collaboration and an expert-driven KM process. For example, while promoting assets through different lifecycle states, users receive iterative guidance to avoid broken interdependencies. Error messages indicate which related assets are causing a lifecycle transition to fail, helping users identify problems and preserve content integrity. CKMS includes a pre-configured lifecycle, which can be modified to meet customer needs.

Modular and extensible models enable users to define new types of knowledge assets and associated metadata. A flexible metadata scheme supports a high level of customization. New assets can be created using standard edit forms delivered with CKMS, or using user-defined forms for specific asset types. While creating new assets, users are supported through configurable default value assignments and field-level validation, preventing common errors and minimizing effort. While editing assets, users can always manually evoke validation checks to periodically confirm if all constraints and dependencies are correct.

USER PERMISSIONS

CKMS provides a flexible and fine-grained permission and management of asset and feature-specific responsibilities for users with different roles.

For example, permissions to create only assets of a given type, or within a persmissions and roles reflect the various functions and levels of expertise of team memebers (knowledge engineers, clinicians, administrators, etc.), fufilling the requirements of complex content engineering workflows.

IMPORT FORMATS

CKMS includes standard import formatst: XML-based and JSON-based. Alternatively, custom import plugins can be implemented using CKMS' flexible plugin framework.

During the import process, CKMS validates the content and provides feedback if the content does comply with defined models and validation checks. The import process also takes acre of creating new revisions of content that is already in CKMS.

"USERS DON'T WANT TO GO TO TEN DIFFERENT TOOLS TO UPDATE ONE CDS RULE."

> **"YOUR KNOWLEDGE BASE IS ALWAYS ACCURATE AND UP-TO-DATE ACROSS ALL INSTITUTIONS."**

SUMMARY

Semedy's Clinical Knowledge Management System (CKMS) is an integrated platform of applications and services designed to effectively create and maintain different types of content. Users are supported in keeping control over links and interdependencies between assets and references to external information sources. CKMS improves the productivity and overall satisfaction of content engineers.

CKMS is designed to become the foundation of multiple knowledge authoring and sharing activities. Once content assets are created in or migrated to CKMS, they can be easily enhanced, linked and distributed to other applications and systems. Integration with systems that create or consume content is accomplished using extensible import and export functions, or via configurable read and write web services. For example, web services can be used to find and retrieve asset metadata to provide infobutton functionalities or similar features.

CONTACT US

Interested in learning more about Semedy?
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