

SNOMED
International

Expo 2017 Tutorial

SNOMED CT Implementation Roadmap

*David Markwell and Jon Zammit
SNOMED International*

• INFEKTIÖS LUNGSJUKDOM
14669001
• ACUTE RENAL FAILURE
• SÍNDROME DE INSUFICIENCIA RENAL
• NYRESVIGTSYNDROM



Overview

Part 1

- Adoption and Planning
- Development or Procurement
- Specification and Procurement
- Approaches to Implementation
- Procurement

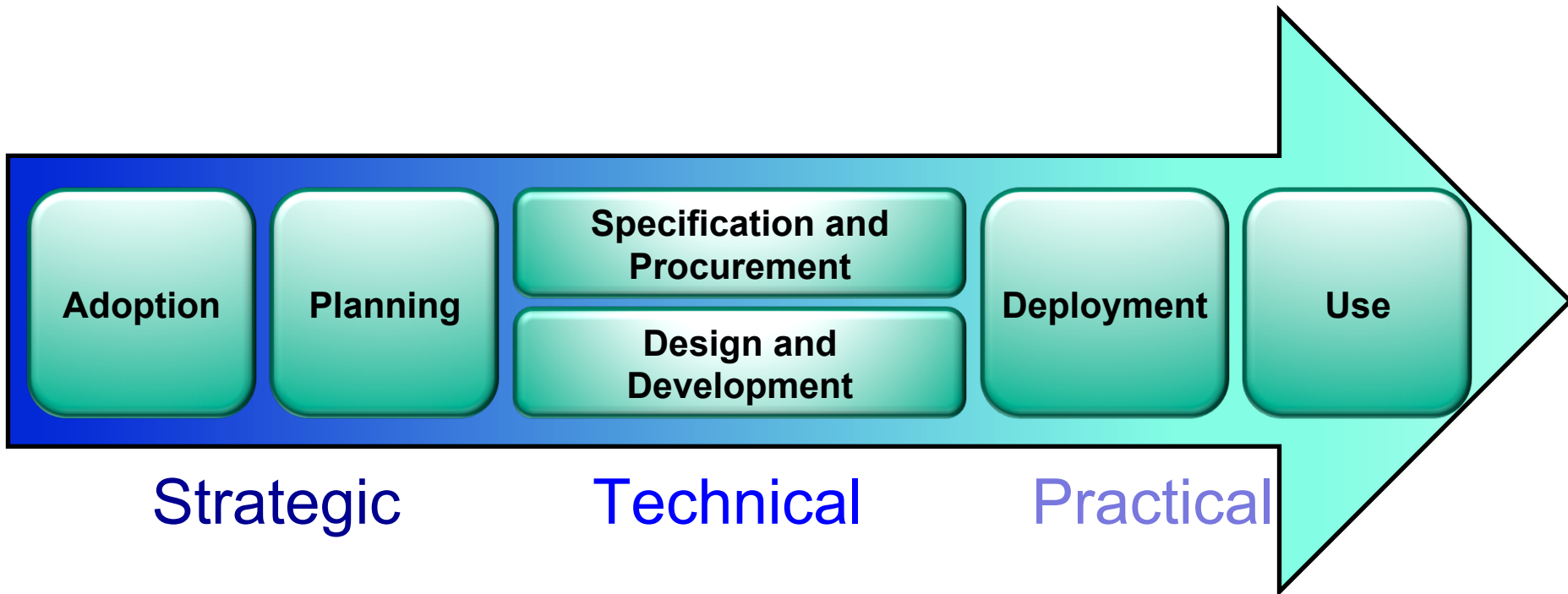
Part 2

- Design and Development
- Implementation Guidance
 - Example: Search and Data Entry
- Deployment & Use

Questions

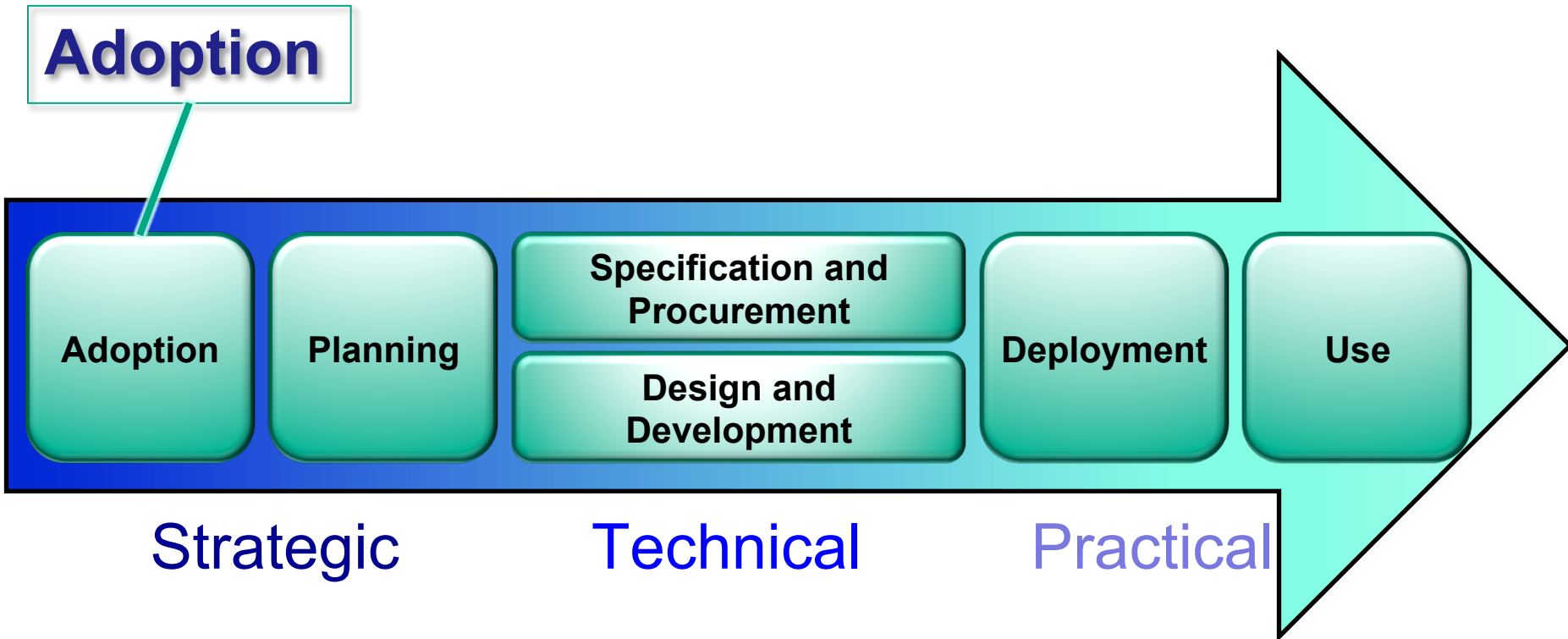


SNOMED CT Implementation Stages



SNOMED CT Implementation Stages

Adoption



Strategic

Technical

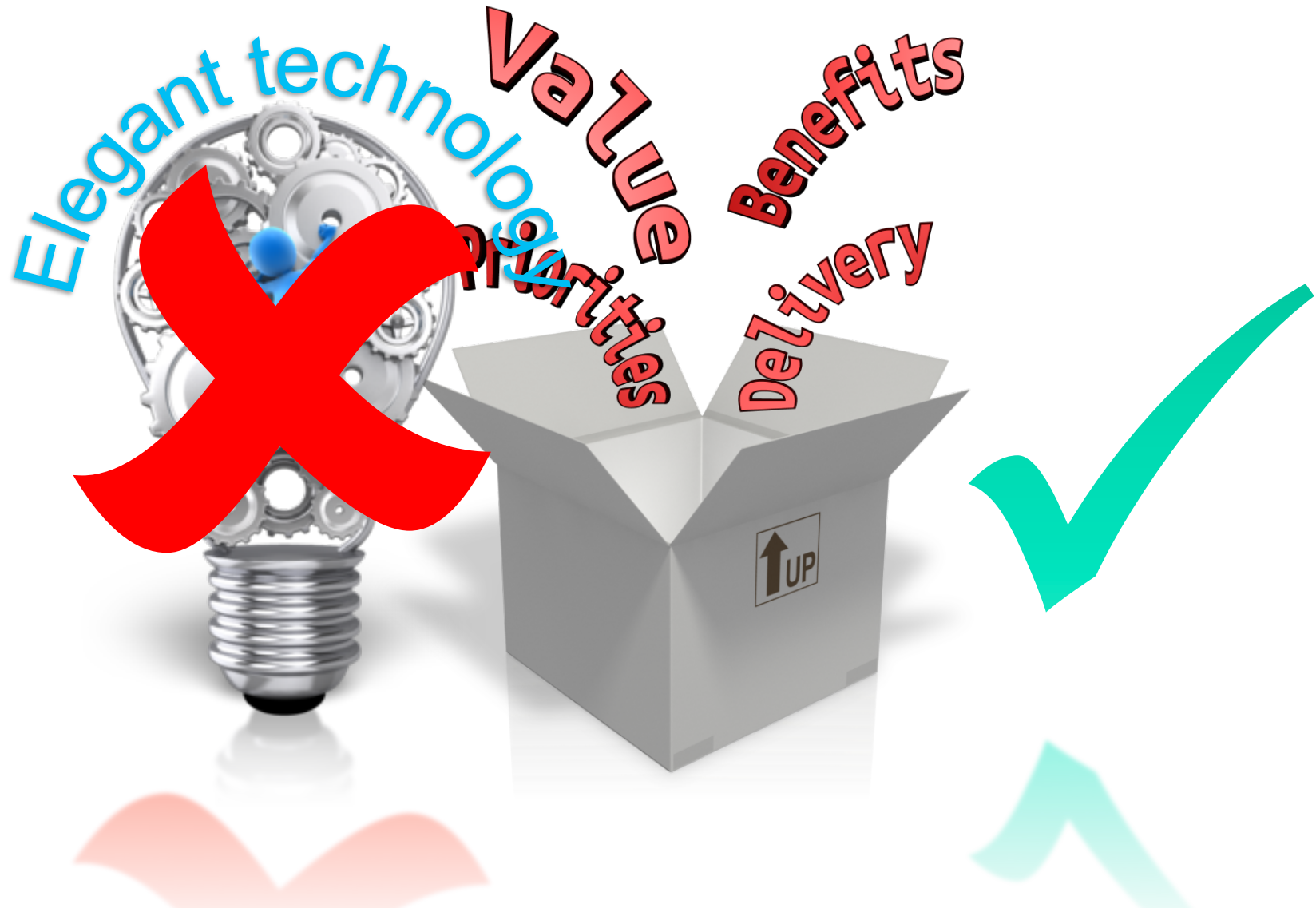
Practical

Adoption Occurs at Many Levels

- National adoption
- Organizational adoption
- Adoption in standards
- Vendor adoption
- Project adoption



Adoption Depends on Delivering Value

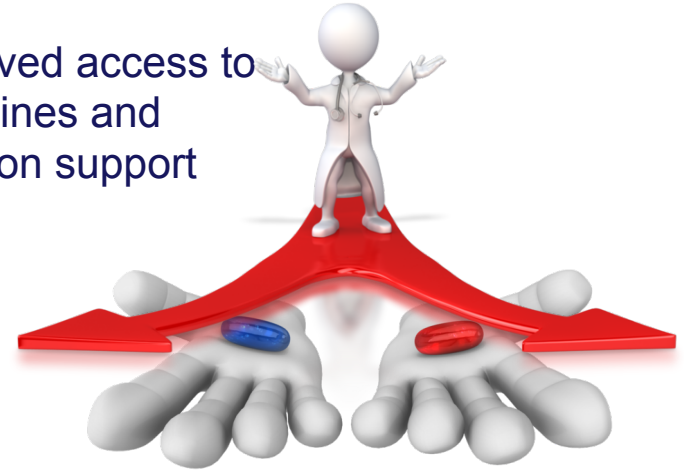


Benefits of SNOMED CT Implementations

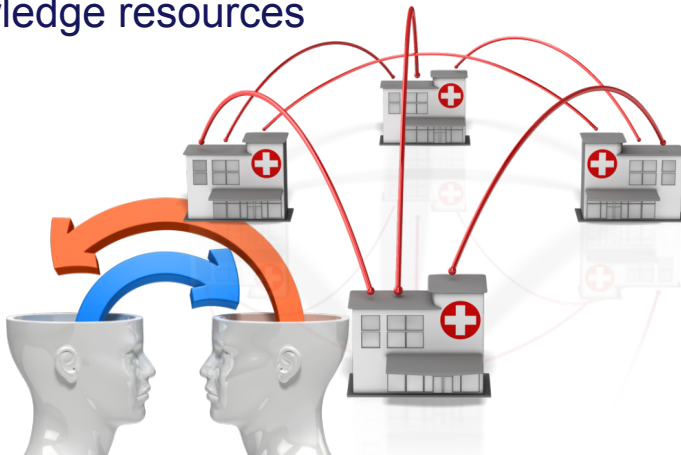
A solid foundation for clinical records



Improved access to guidelines and decision support



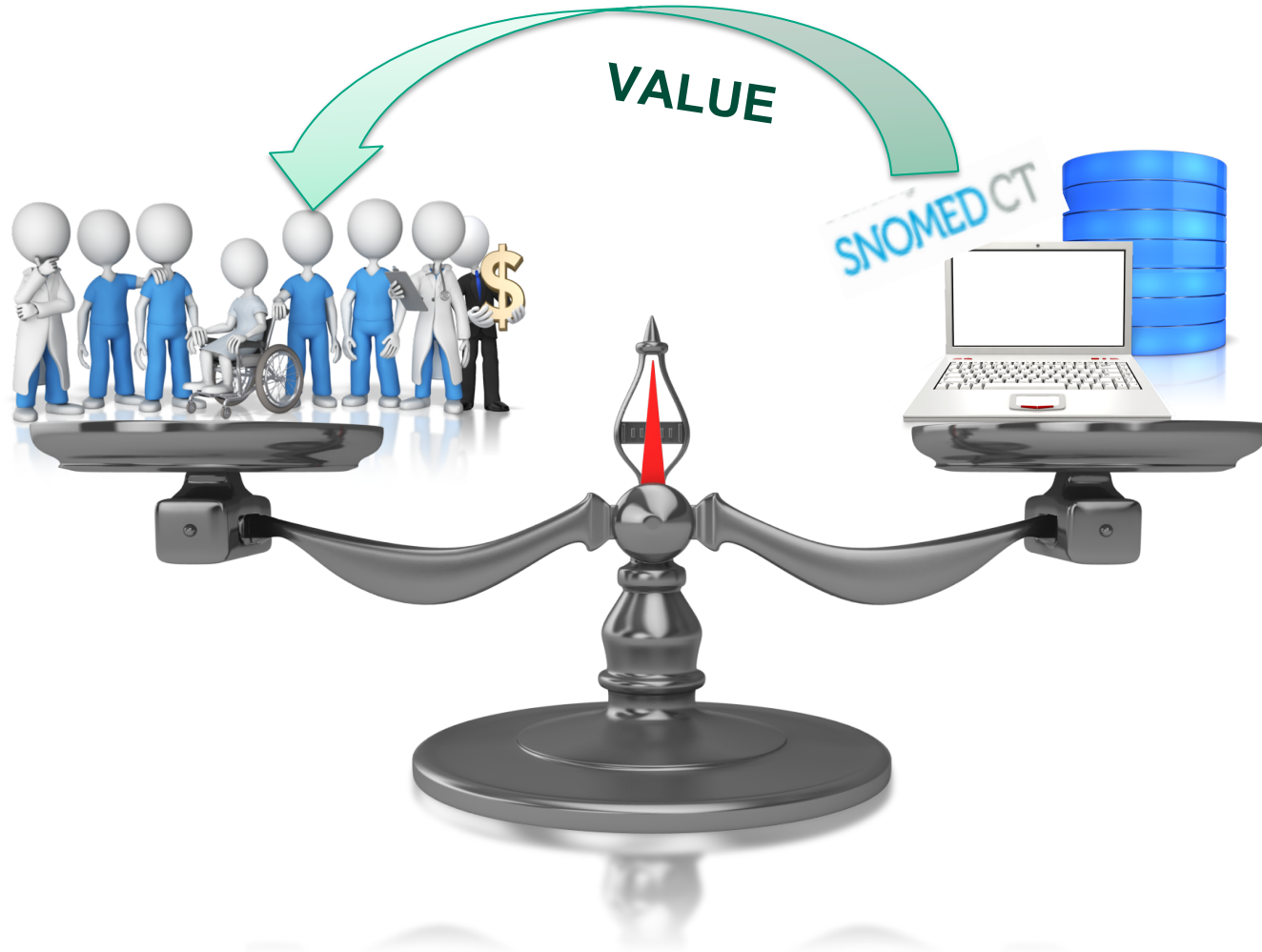
Interoperable information and knowledge resources



Improved Clinical and Business Intelligence



Approach to Successful SNOMED CT adoption

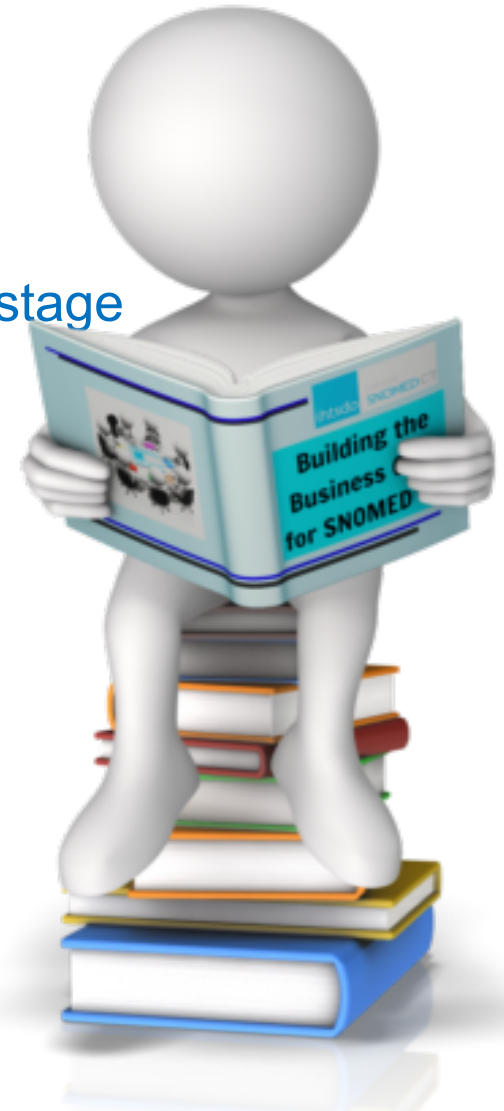


Approach to Successful SNOMED CT adoption



Building the Business Case for SNOMED CT

- Published in 2014
- Sets out the business case for SNOMED CT
 - Costs of adoption
 - Implementation stages
 - Qualitative and quantitative benefits of each stage
- Available for download from our website
 - www.snomed.org
 - Direct link
 - <http://snomed.org/businesscase>



SNOMED CT Implementation Stages

Planning

Adoption

Planning

**Specification and
Procurement**

**Design and
Development**

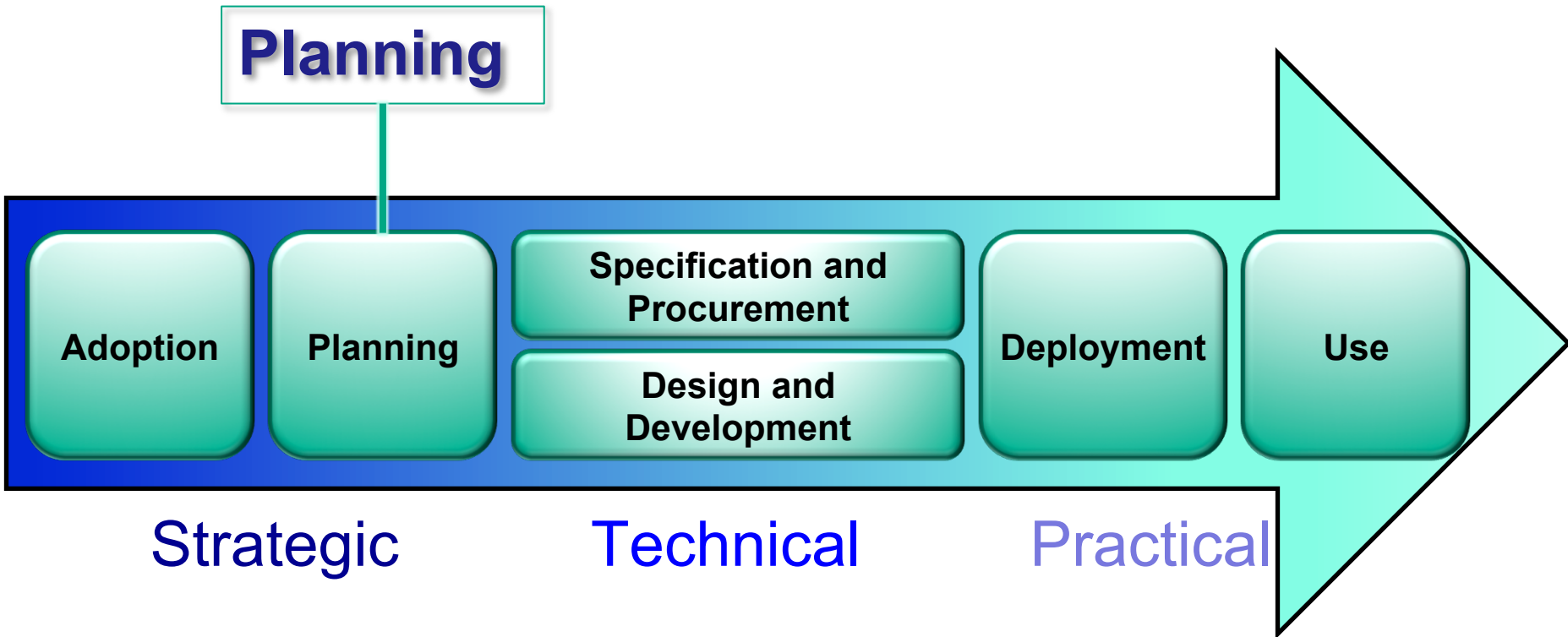
Deployment

Use

Strategic

Technical

Practical



Planning

- Planning how SNOMED CT will be used
- Identifying
 - Existing systems to be modified
 - New systems required
- Determining whether to
 - Design and develop
 - Specify and procure
- Awareness of dependencies
- Setting realistic timescales

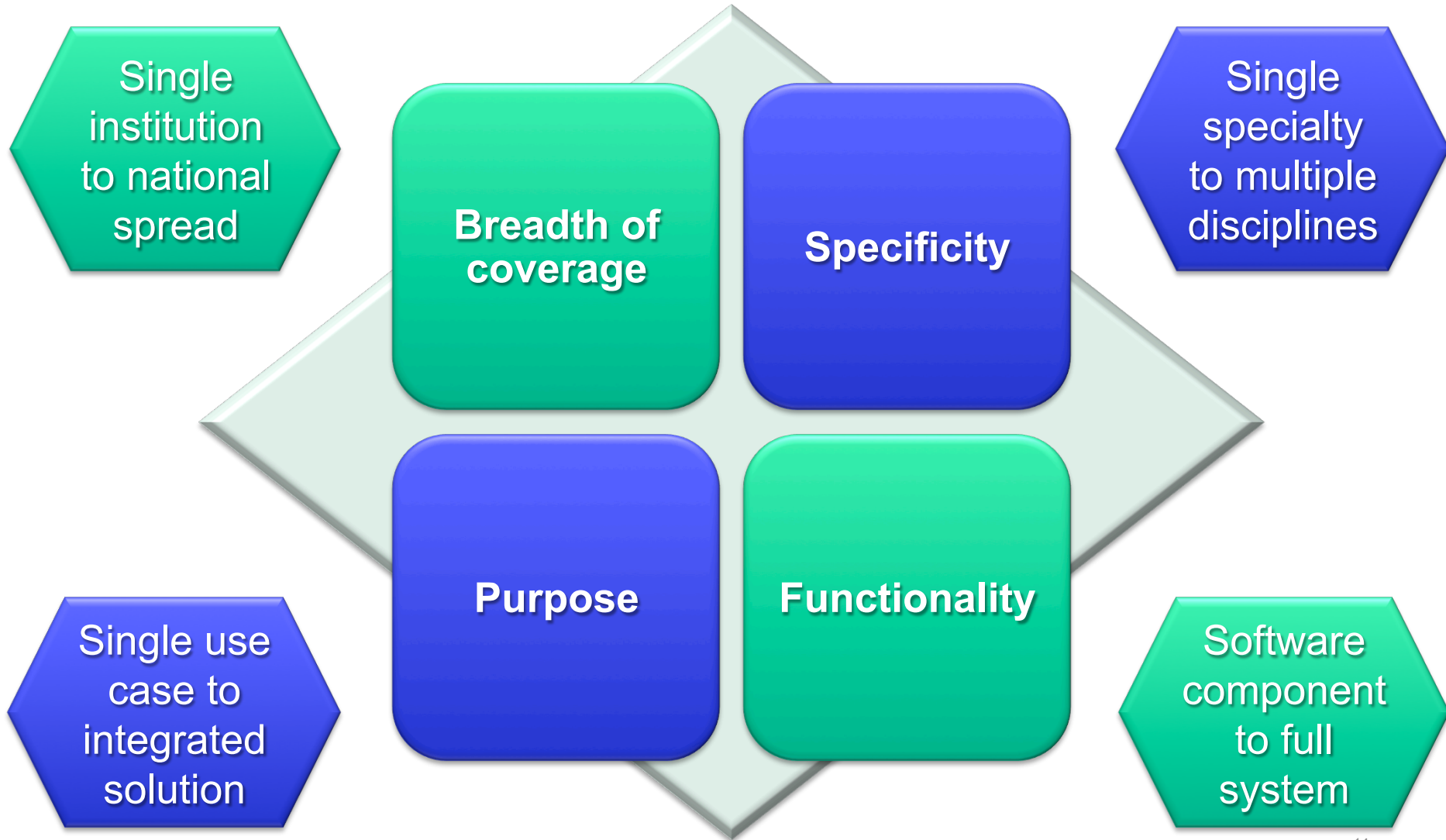


Understand Where Are You Starting From?

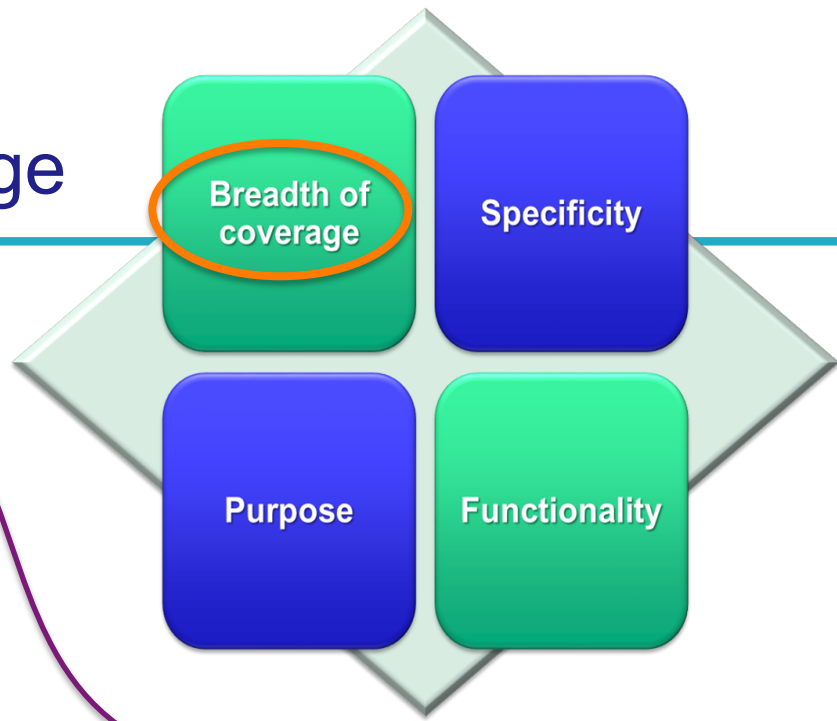
- A new system – a fresh start on a ‘greenfield site’
 - Addressing new requirements with SNOMED CT
 - Using SNOMED CT as part of a new development
- Replacing a relic of earlier development
 - Replacing a system without losing functionality or information
 - Including SNOMED CT as part of the new solution
- An evolving system
 - Updates to a system that includes use of SNOMED CT
 - Step by step progress to add SNOMED CT enabled functionality



Understand the Scope of Intended Implementation



Scope: Breadth of Coverage

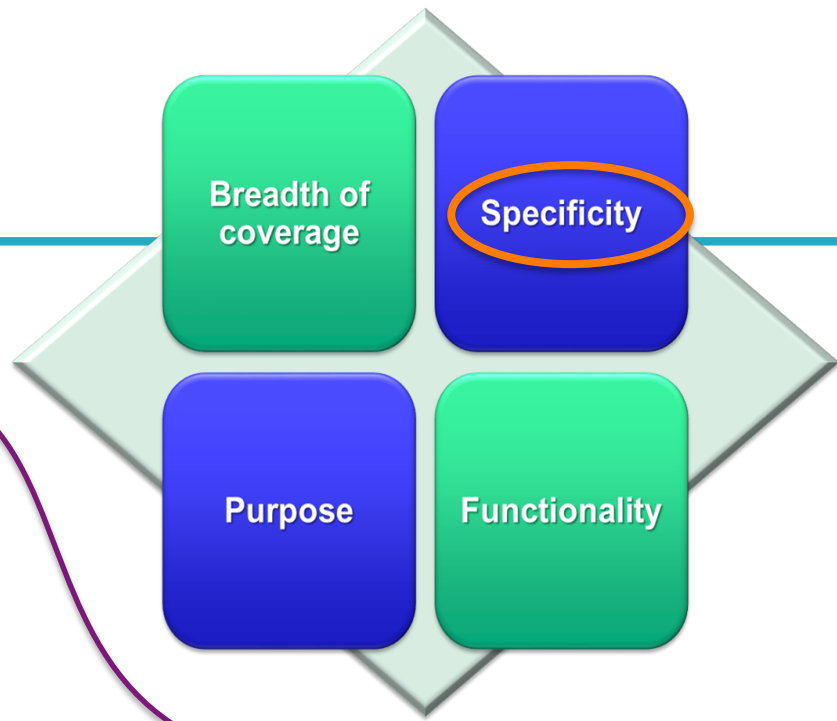


National



Single institution

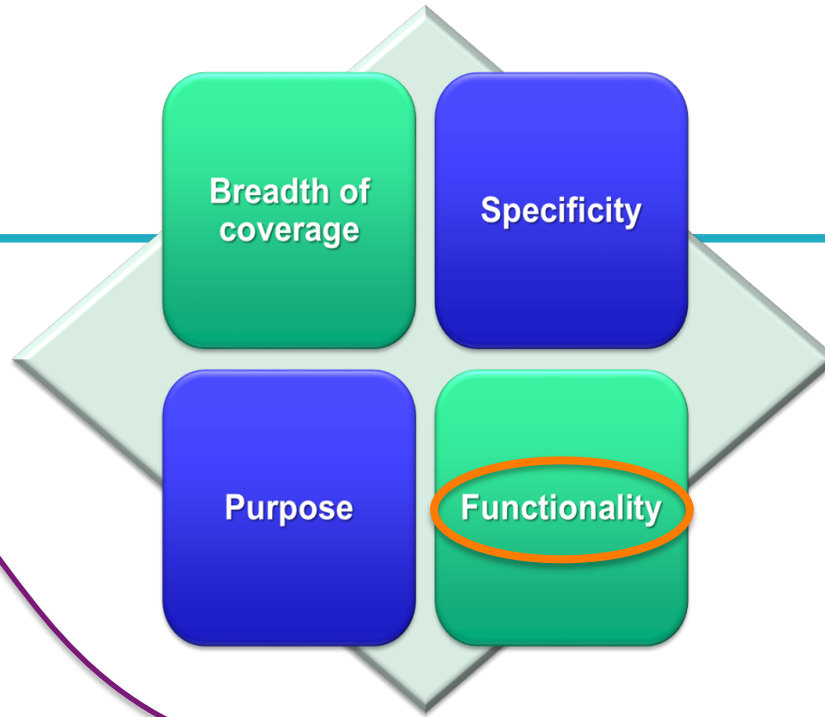
Scope: Specificity



Multidisciplinary EHR

Specialty EHR

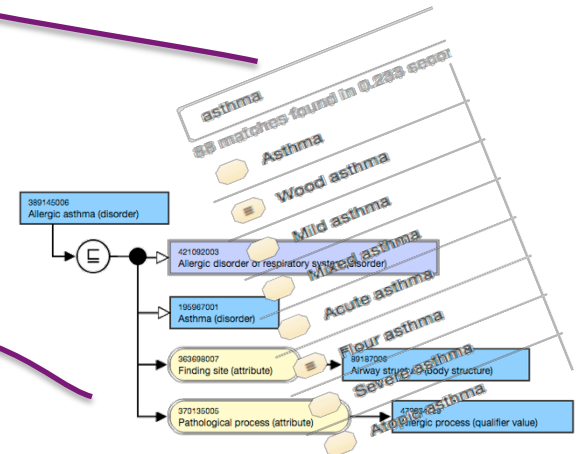
Scope: Functionality



Decision support



Stored EHR



Complete system

Software component

Plan to Make Implementation a Team Effort

Clinical Researcher

EHR Developer

Health
Professional



EHR Purchaser

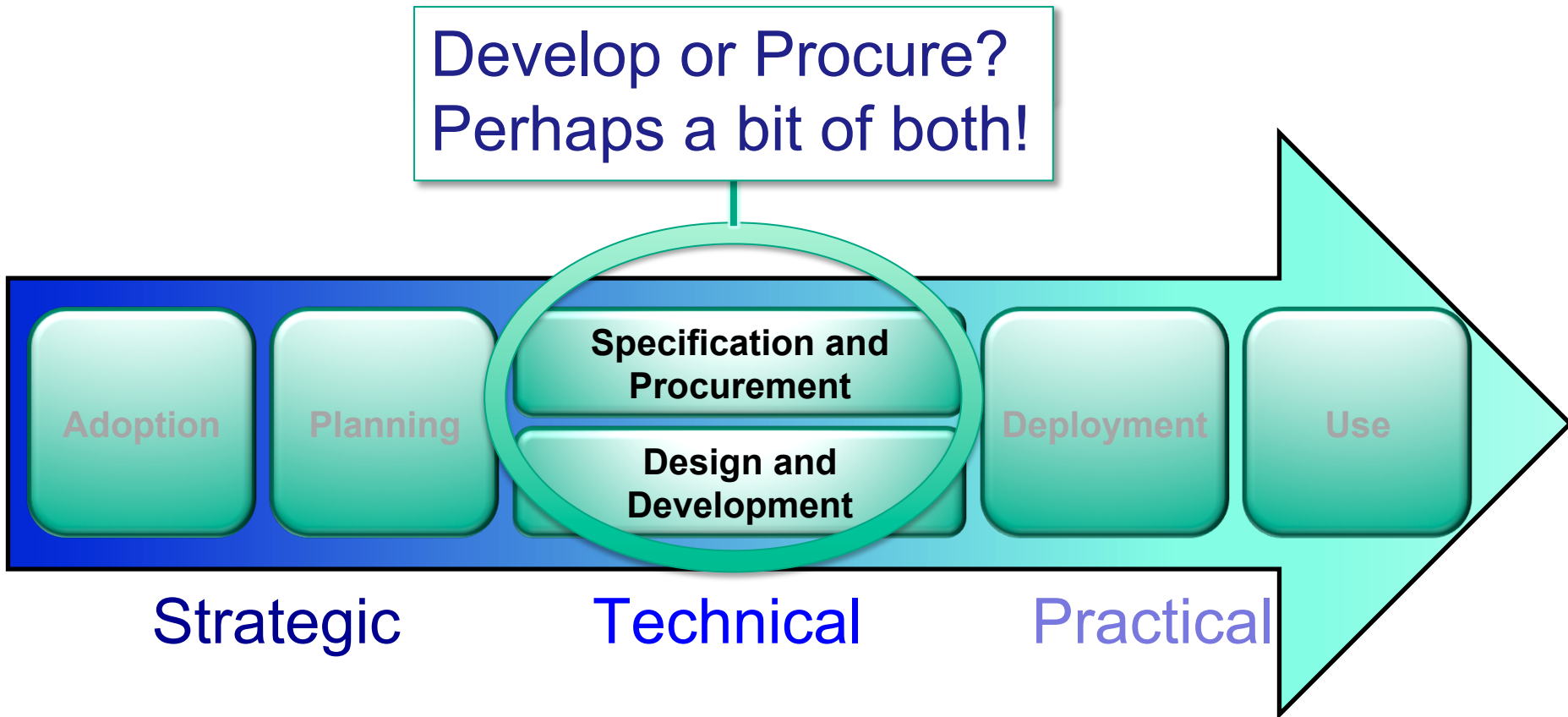
SNOMED CT Advisor

Health Service
Manager

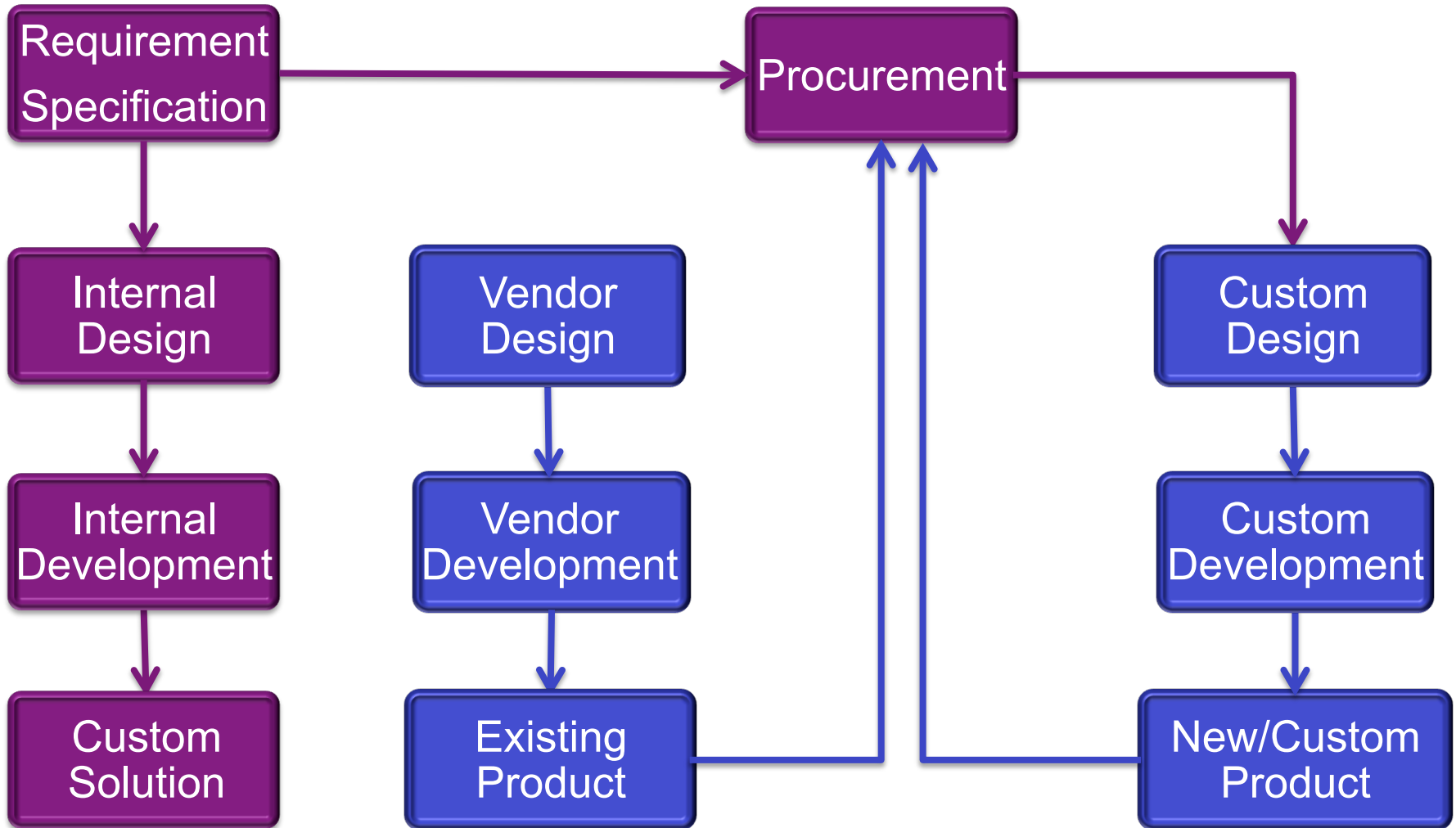
Knowledge
Publisher

Guideline Developer

SNOMED CT Implementation Stages

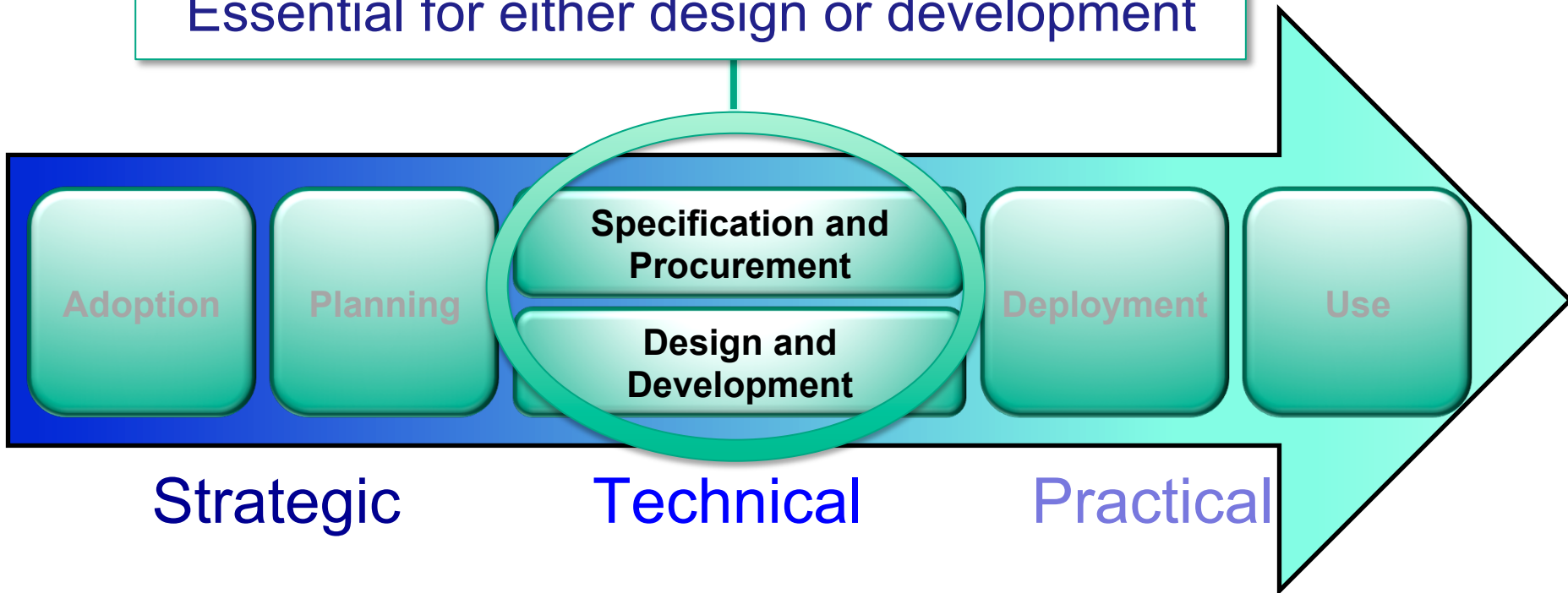


Development and Procurement - Different Routes to a Common Goal



SNOMED CT Implementation Stages

Clear Specification of Requirements
Essential for either design or development



Pitfalls When Specifying Requirements

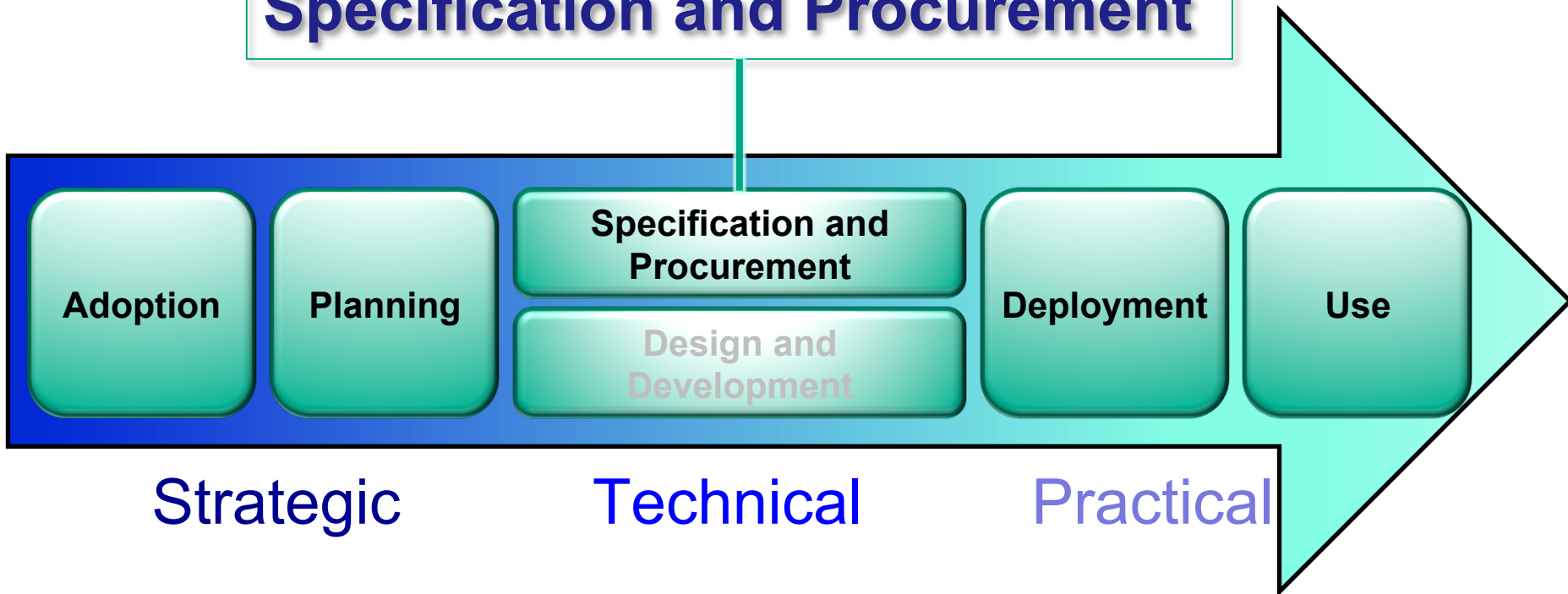
- It is not enough to say ‘Implement SNOMED CT’
 - Some of those responding to a procurement may interpret SNOMED CT implementation in a limited way
- SNOMED CT implementation is not all or nothing
 - There are different approaches to SNOMED CT implementation
- Benefits depend the approach
 - Choose an approach that meets your immediate requirements
... but consider the impact on next steps ...
 - A short-term solution may delay enhancements that meet future requirements and deliver additional benefits

Identifying Requirements

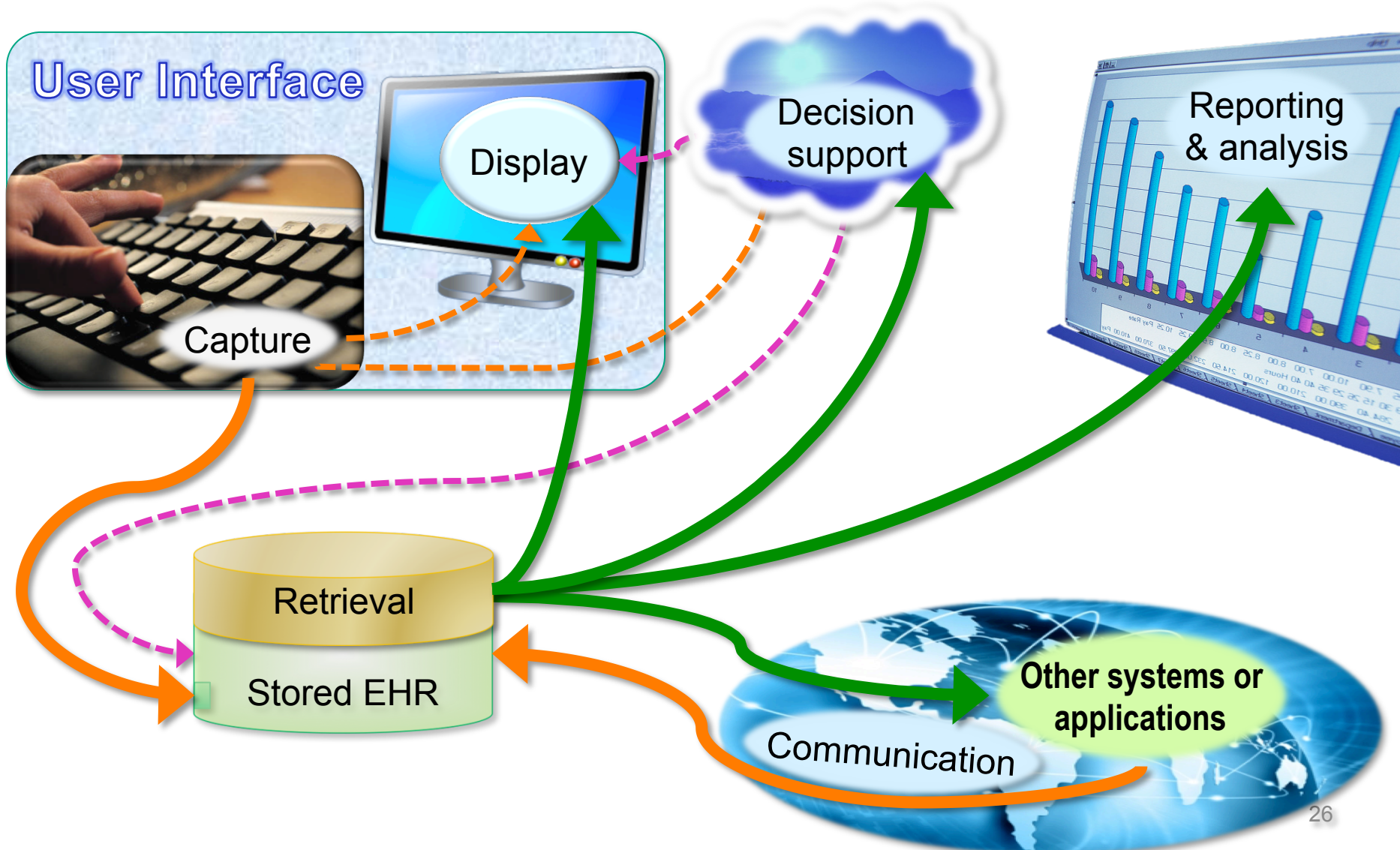
- Clearly document
 - Objectives – what benefits should be delivered
 - Outcomes – what measurable changes are to be achieved
 - Practical use – how current working practices will be supported
- SNOMED CT specific requirements
 - May vary depending on overall objectives
 - Should not be specified in isolation but should be considered in the context of the overall solution
 - May impact all stages of the clinical information life cycle

SNOMED CT Implementation Stages

Specification and Procurement



Clinical Information Life Cycle

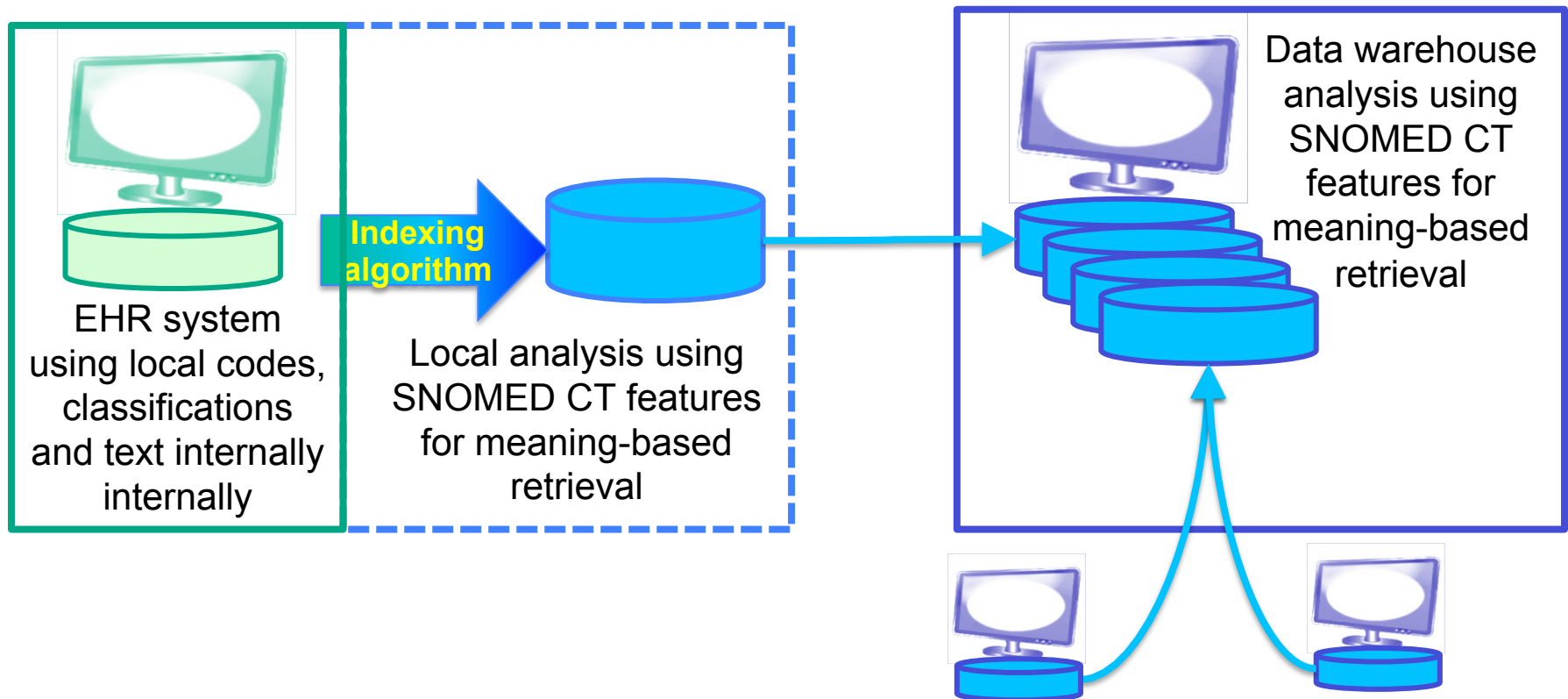


Specifications Should Cover All Stages in the Clinical Information Life Cycle

- Data capture
 - Easy to use as part of clinical working practice of all intended users
- Storage
 - Structured and/or indexed to enable effective retrieval
- Display
 - Information relevant to different intended users readily accessible and displayed in ways relevant that support their work
- Communication
 - Meeting needs for sharing or transfer of required information in standard or agreed forms
- Reporting and analysis
 - Effective retrieval to meet requirements of clinical users and other stakeholders (e.g. epidemiologists, management, researchers)
- Make sure the selected solution meets your requirements
 - Include acceptance tests for all stages
 - All aspects of your requirements should be tested

Approaches to Using SNOMED CT Indexing for Analytics

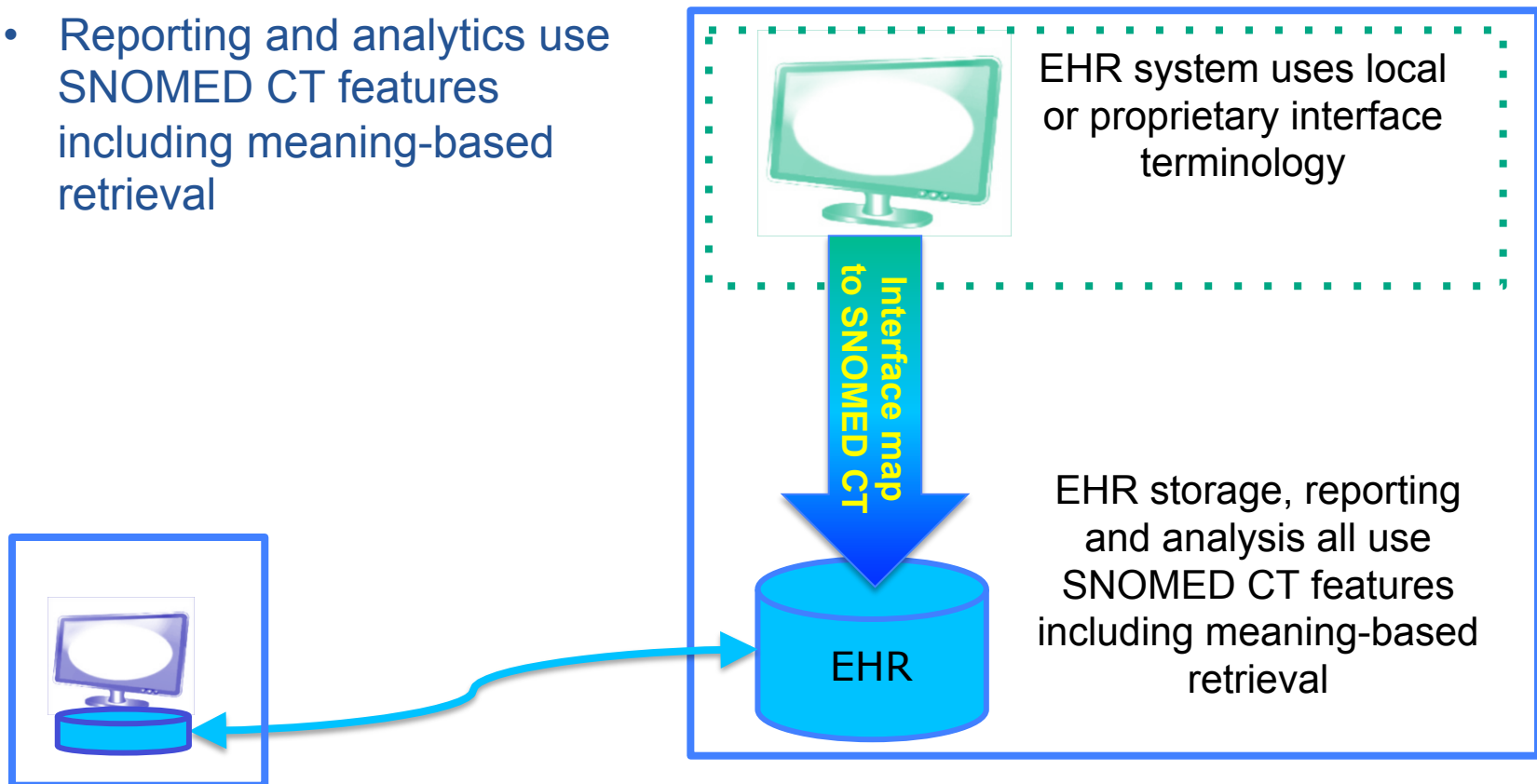
- EHR system using local codes, classification and text to represent records
- Algorithmic rules map and index data with SNOMED CT codes or expressions
 - For local analysis using SNOMED CT semantics
 - For export to data warehouse for larger scale aggregation and analysis



Approaches to Using SNOMED CT

Use of SNOMED CT for Internal Storage

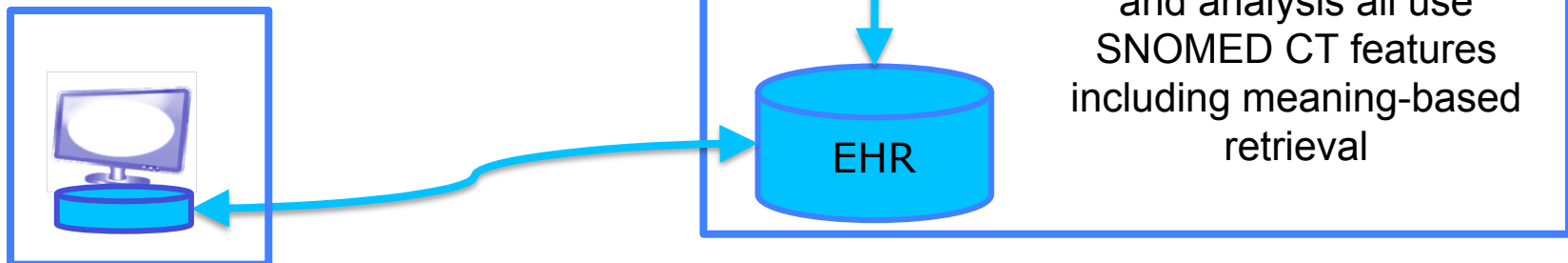
- Data capture (and display) use a local or proprietary user interface terminology
- Interface terminology is mapped or linked to SNOMED CT
- EHR system uses SNOMED CT for storage, indexing and communication
- Reporting and analytics use SNOMED CT features including meaning-based retrieval



Approaches to Using SNOMED CT

Full Use of SNOMED CT

- Data capture (and display) uses SNOMED CT interface features including
 - Synonyms and language reference sets
 - Subsets and ordered lists represented as SNOMED CT simple or ordered reference sets
 - Searches using subtype filtering to limit list
- EHR system uses SNOMED CT for storage, indexing and communication
- Reporting and analytics use SNOMED CT semantics to support meaning-based retrieval



Multistep Approaches and Tailor-made Solutions



- Stepwise approaches may allow your requirements to be met in stages
 - Ensure each stage delivers benefits to motivate use
 - Lack of short-term benefits may reduce enthusiasm for future steps
- A tailor made solution may meet all your stated requirements
 - But your requirements for SNOMED CT may evolve
 - Can the solution be adapted to meet emerging requirements or will you need to start again?



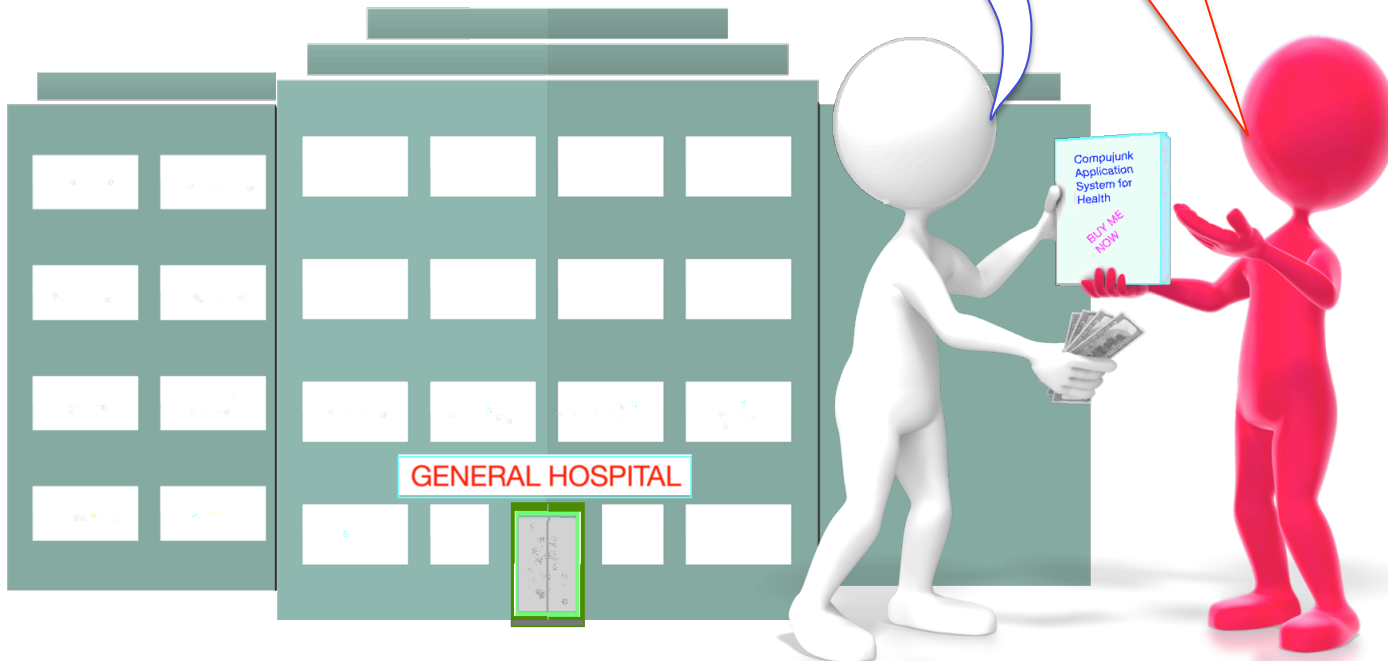
Warnings and Hopeful Signs in a Procurement



Warning Signs During Procurement

Does your system support
SNOMED CT?

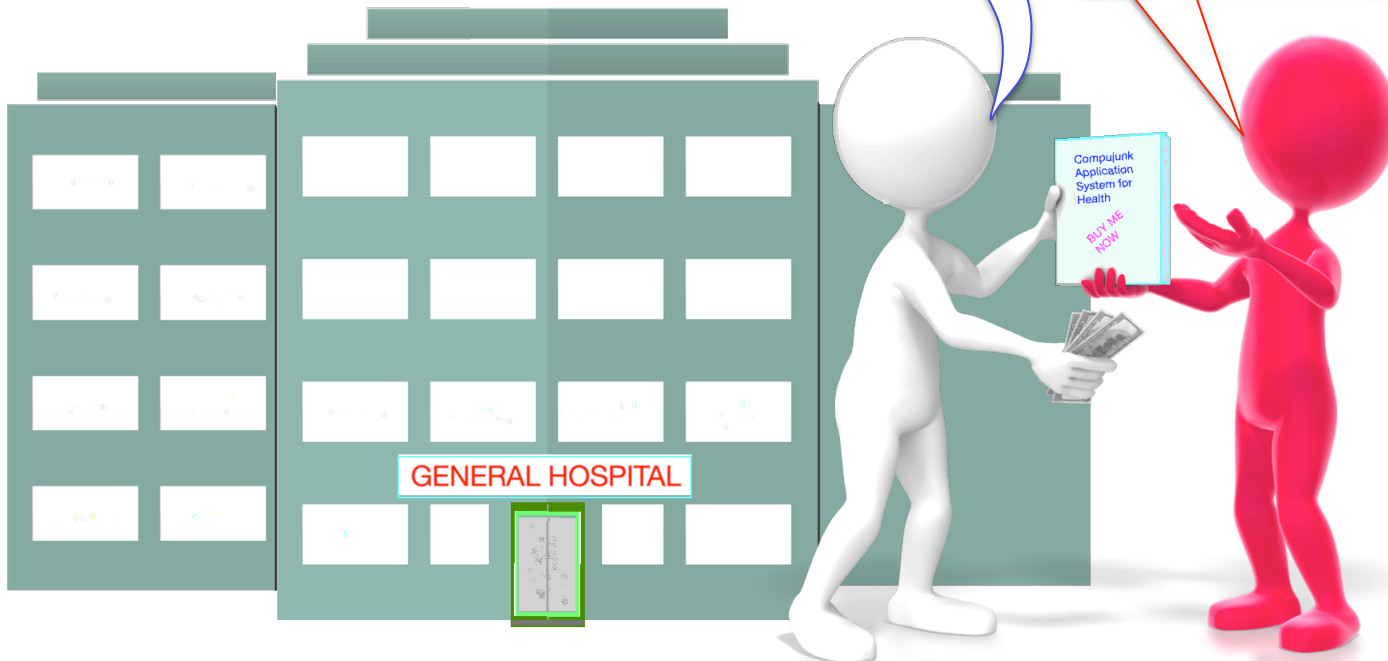
Our system can use any codes
you choose. If you want
SNOMED CT we will just add
it to our code tables



Warning Signs During Procurement

How do users record data using SNOMED CT?

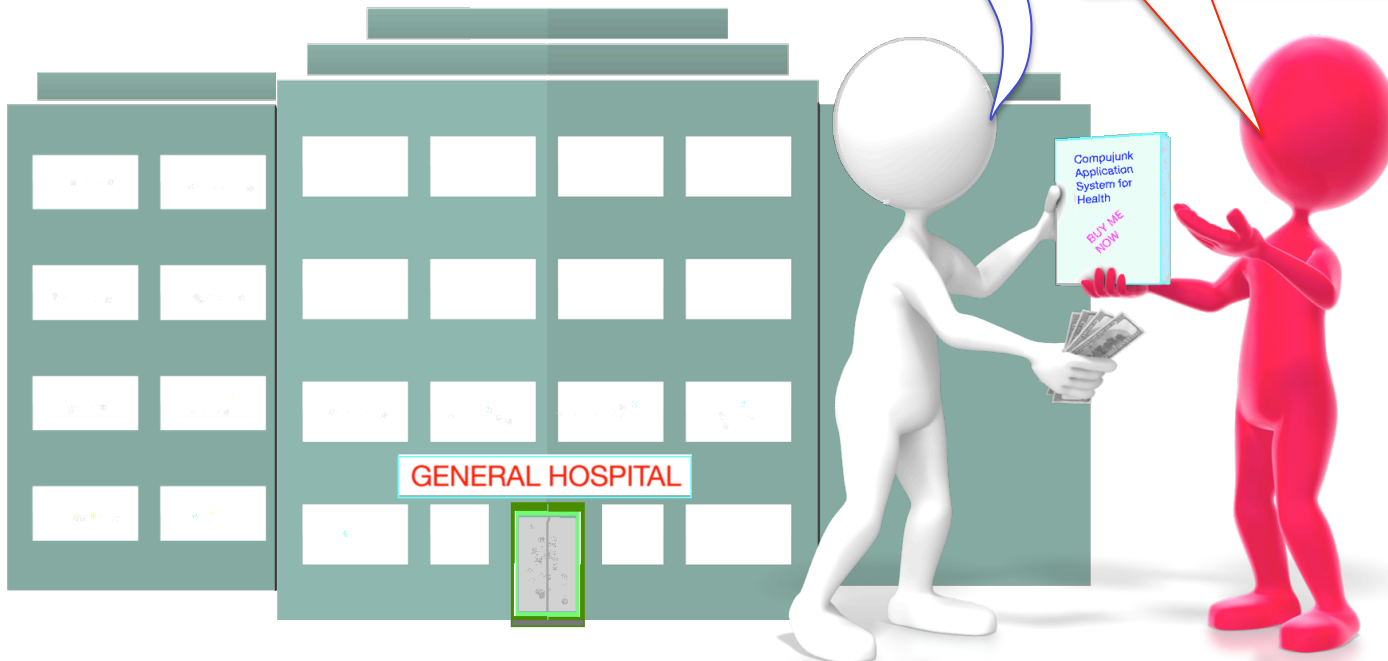
SNOMED CT is just a long list of terms you can choose from



Warning Signs During Procurement

Can I retrieve data using
SNOMED CT?

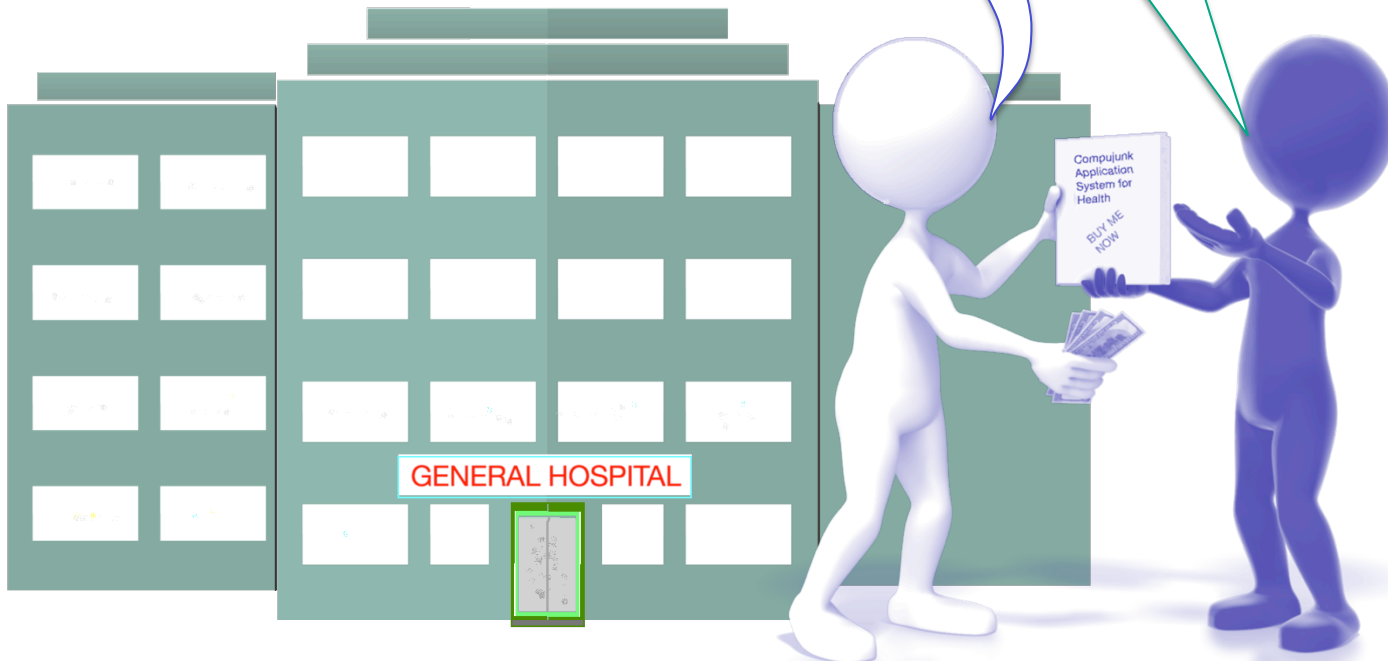
Yes you can specify the
codes you want to retrieve
in any code system



Positive Signs During Procurement

Does your system support
SNOMED CT?

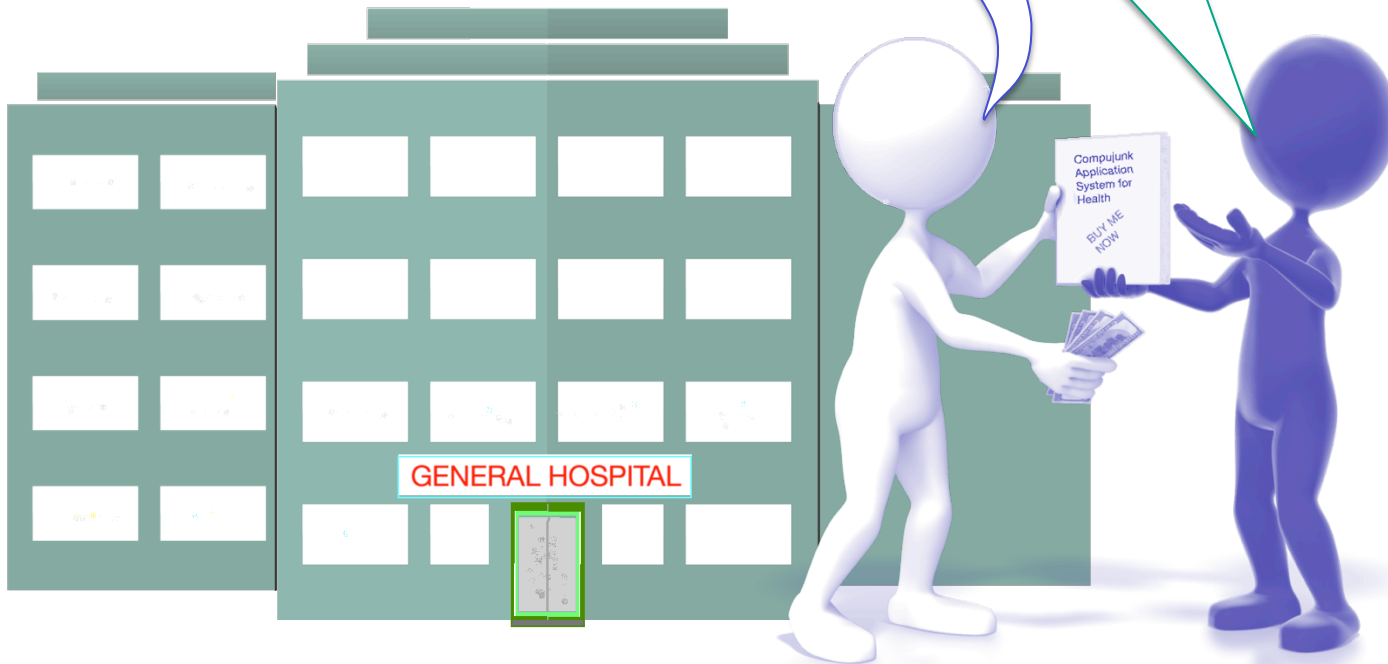
Yes we support SNOMED CT
and we can put you in touch
with a people who are using
our system with SNOMED CT



Positive Signs During Procurement

What features of SNOMED CT does your system support?

Our proposal details the SNOMED CT features the system supports for data entry, retrieval, etc. It also notes features we don't support and future planned enhancements ...



Overview - Part 2

Part 1

- Adoption and Planning
- Development or Procurement
- Specification and Procurement
- Approaches to Implementation
- Procurement

Part 2

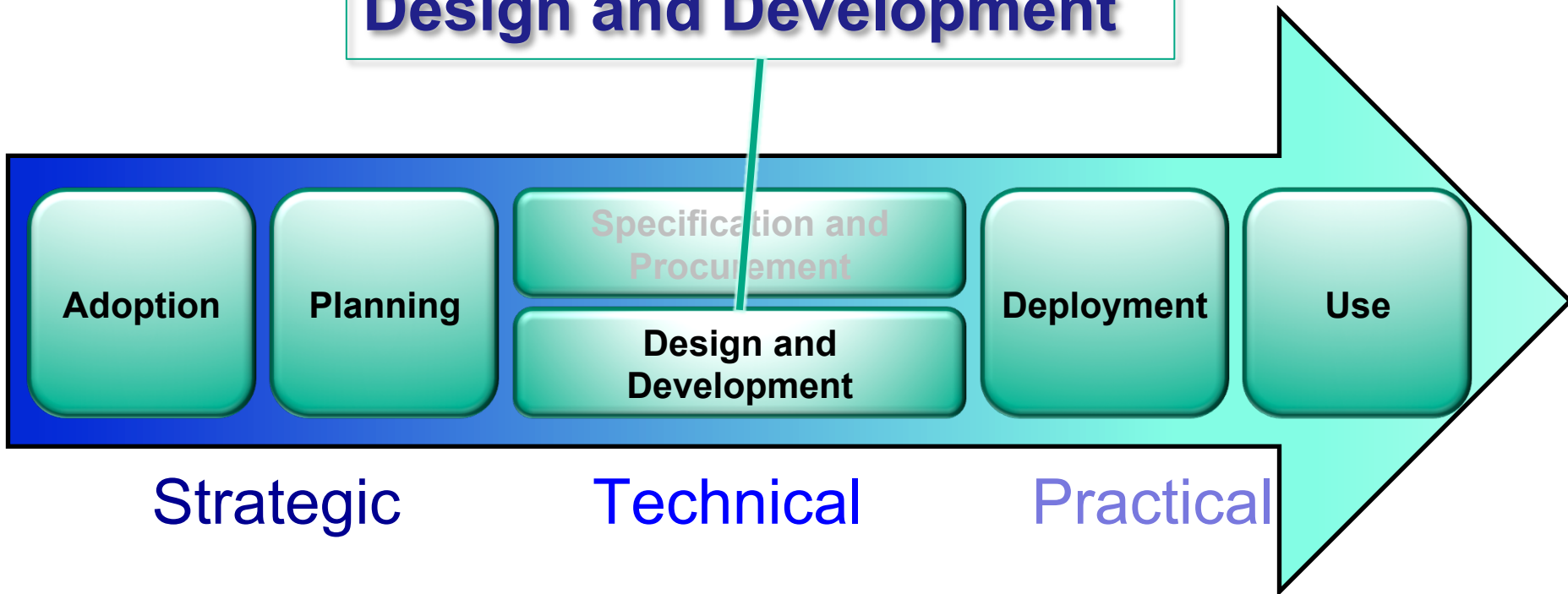
- Design and Development
- Implementation Guidance
 - Example: Search and Data Entry
- Deployment
- Use of SNOMED CT

Questions



SNOMED CT Implementation Stages

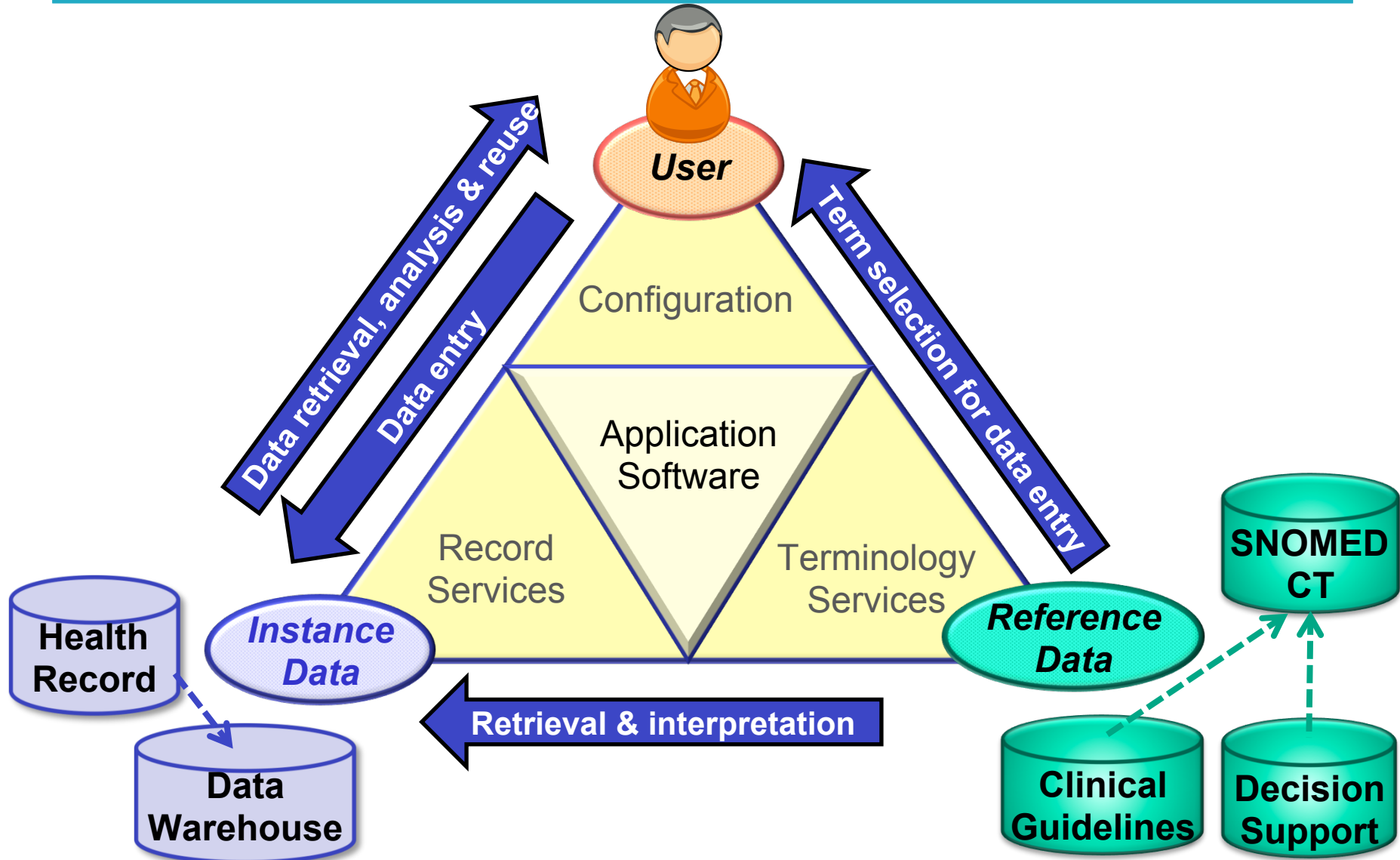
Design and Development



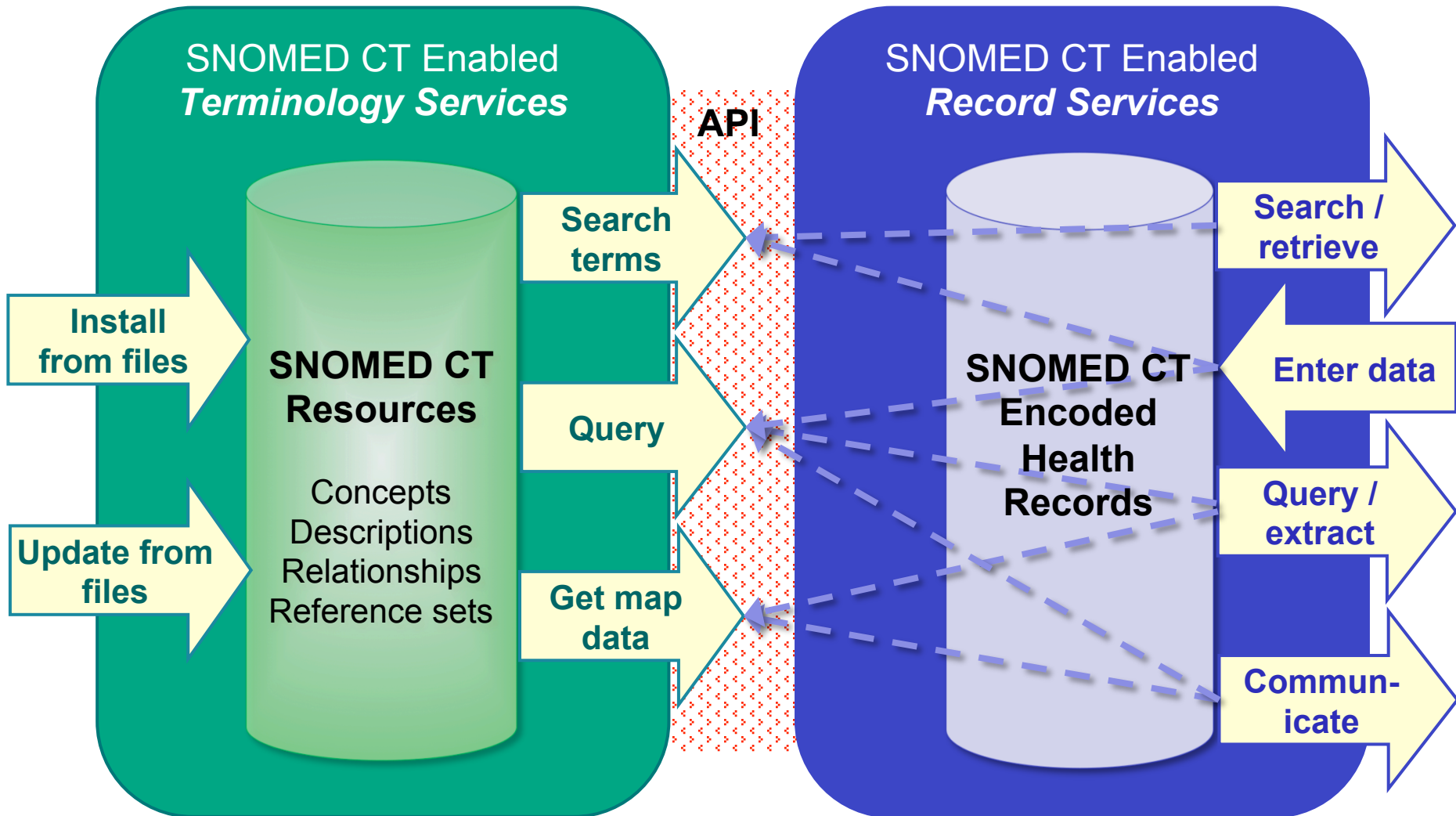
Team Contributions to Specification and Design

- **Clinical input to user interface design and motivation**
 - Compatible with clinical practice
 - Identify benefits that will encourage use
- **System architects and software designers**
 - Robust system design delivering necessary performance
 - Support for SNOMED CT logical design
- **Guidelines and decision support developers**
 - Support use of SNOMED CT for knowledge linkage
- **Management**
 - Alignment with key reporting and audit requirements
- **Epidemiology and Clinical Research**
 - Identify key features for epidemiology and clinical research

Users, Software, Services and SNOMED CT



SNOMED CT Enabled EHR Services



SNOMED CT Enabled Services

Software services that support effective use of SNOMED CT as part of health record systems

- Record services
 - Services that directly manage patient health records
 - Data entry, display, retrieval, communication and record sharing
- Terminology services
 - Services manage and provides access to terminology resources
 - Installing, searching, navigating and using the terminology
- Knowledge resource services
 - Clinical guidelines
 - Decision support
- Analytics services
 - Data warehousing
 - Reporting and auditing

Design and Development: Recommendations for SNOMED CT Implementers

- Make use of SNOMED CT features including ...
 - Synonyms and language preferences
 - Enhanced meaning-based retrieval
 - Reference sets to customize for different uses
 - Constrained searches appropriate to a particular context
 - Extensions that meet national and local requirements
- Make use of the guidance we offer
 - Refer to the Technical Implementation Guide (TIG)
- Avoid common pitfalls
 - Thinking of SNOMED CT as just a code system replacement
 - Simplistic searches that return long unstructured lists of matches
 - Failing to update to the latest SNOMED CT release

Implementation Guidance Example

Search and Data Entry



Search and Data Entry

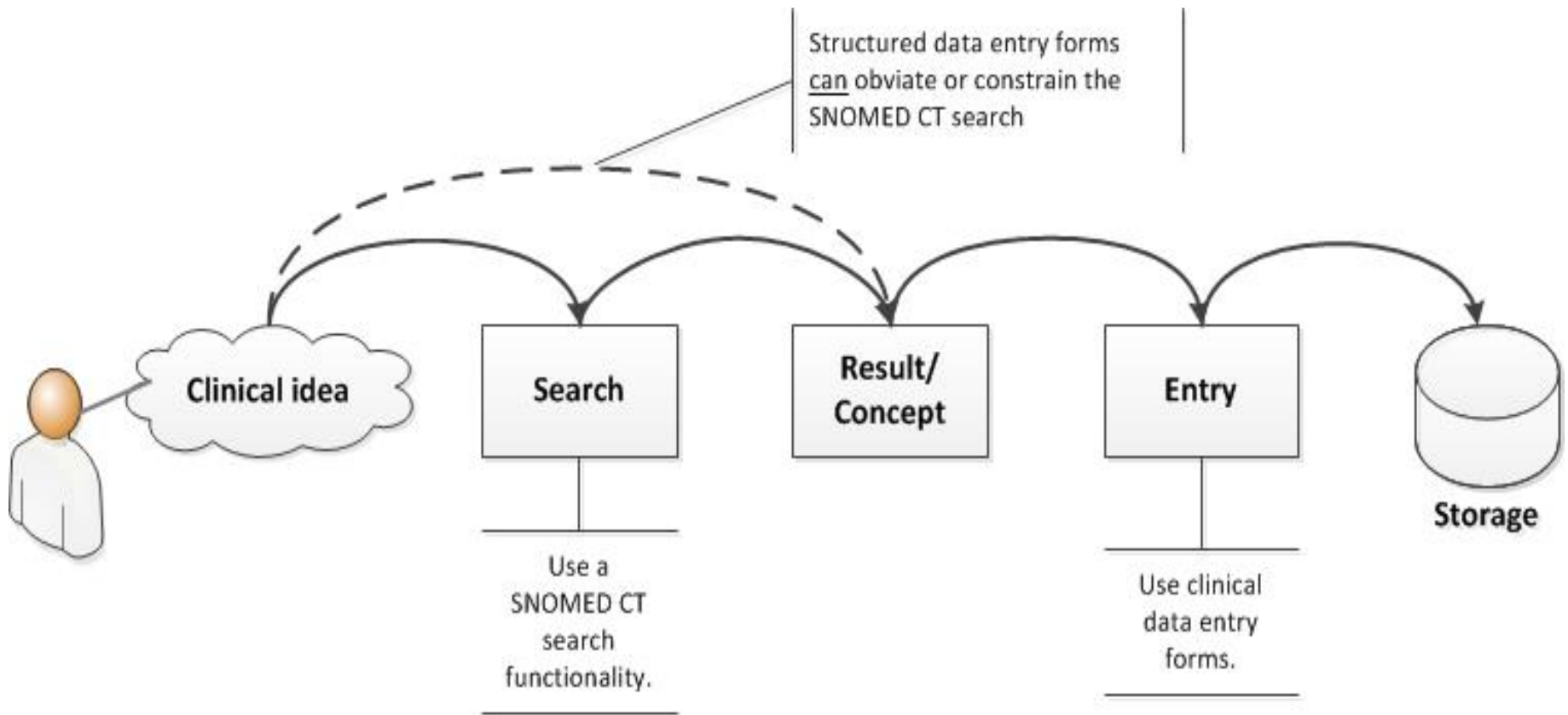
- Search

- Process by which a user finds a concept to represent a clinical idea
- Needs to be quick and easy for users
- SNOMED CT can make this easier

- Data Entry

- Process by which a user submits information containing relevant SNOMED CT concept identifiers for storage in an EHR
- Approach depends on the setting

Relationship Between Search and Data Entry



Use Cases for Searching SNOMED CT

- Select a clinical meaning for data entry at point of care
- Design a data entry template
- Create a query or report
- Bind SNOMED CT to information models
- Bind SNOMED CT to knowledge artifacts
- Develop a reference set
- Evaluate terminology content
- Author SNOMED CT content (extensions or translations)
- Develop maps from SNOMED CT to other code systems

Approaches to Searching

- Search by Terms
 - Search by Identifiers
 - Constrain Searches
 - Extend Searches
-
- Techniques to
 - Improve Search Speed
 - Optimize Display of Search Results



Search by Terms

- User configurable search strings:
 - Words or parts of words in any order – *usually the best option*
 - Precise matching word or phrase
 - Contains a string or pattern

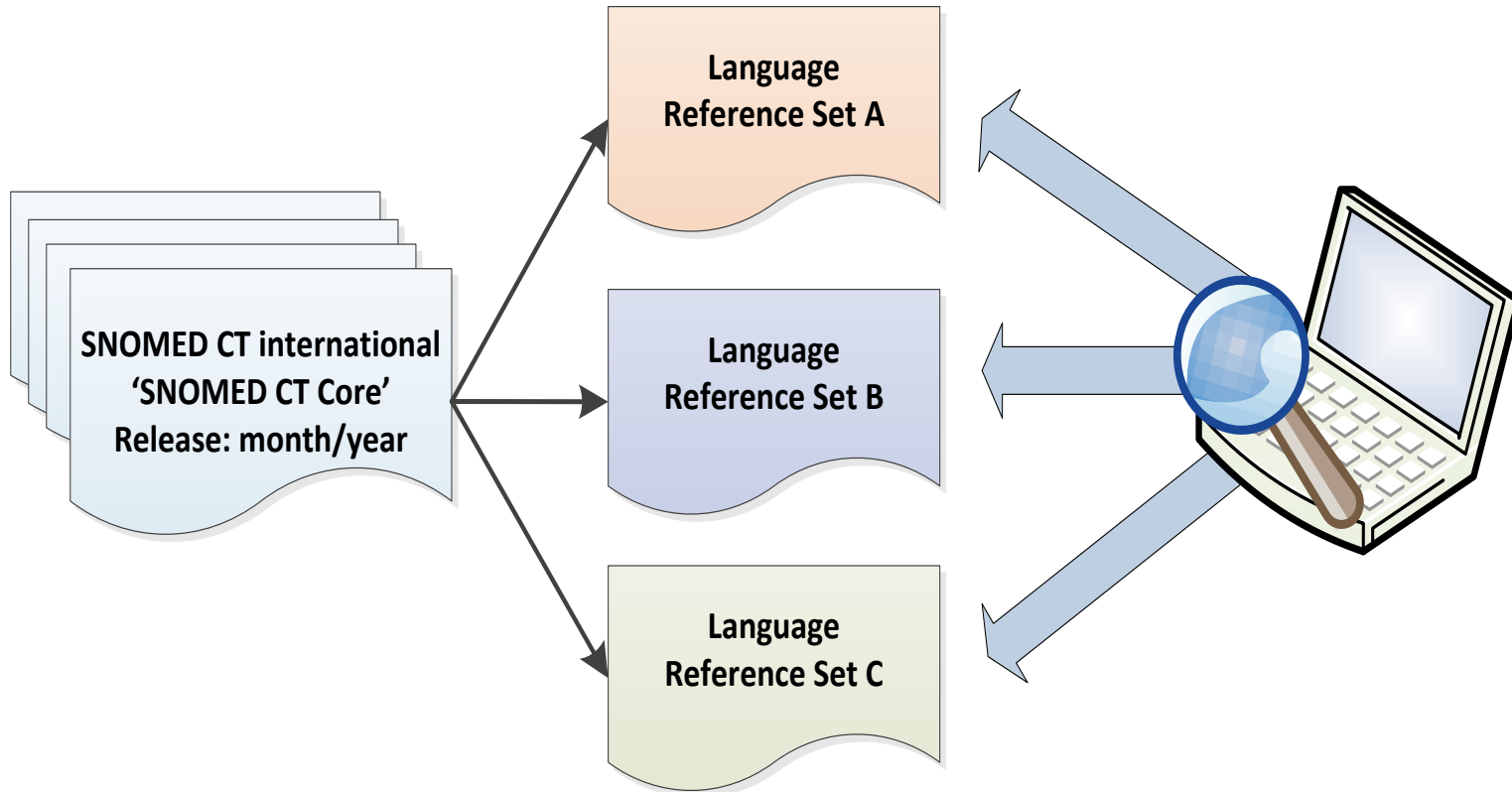
Type at least 3 characters ✓ Example: *shou fra*

myo inf

408 matches found in 0.533 seconds.

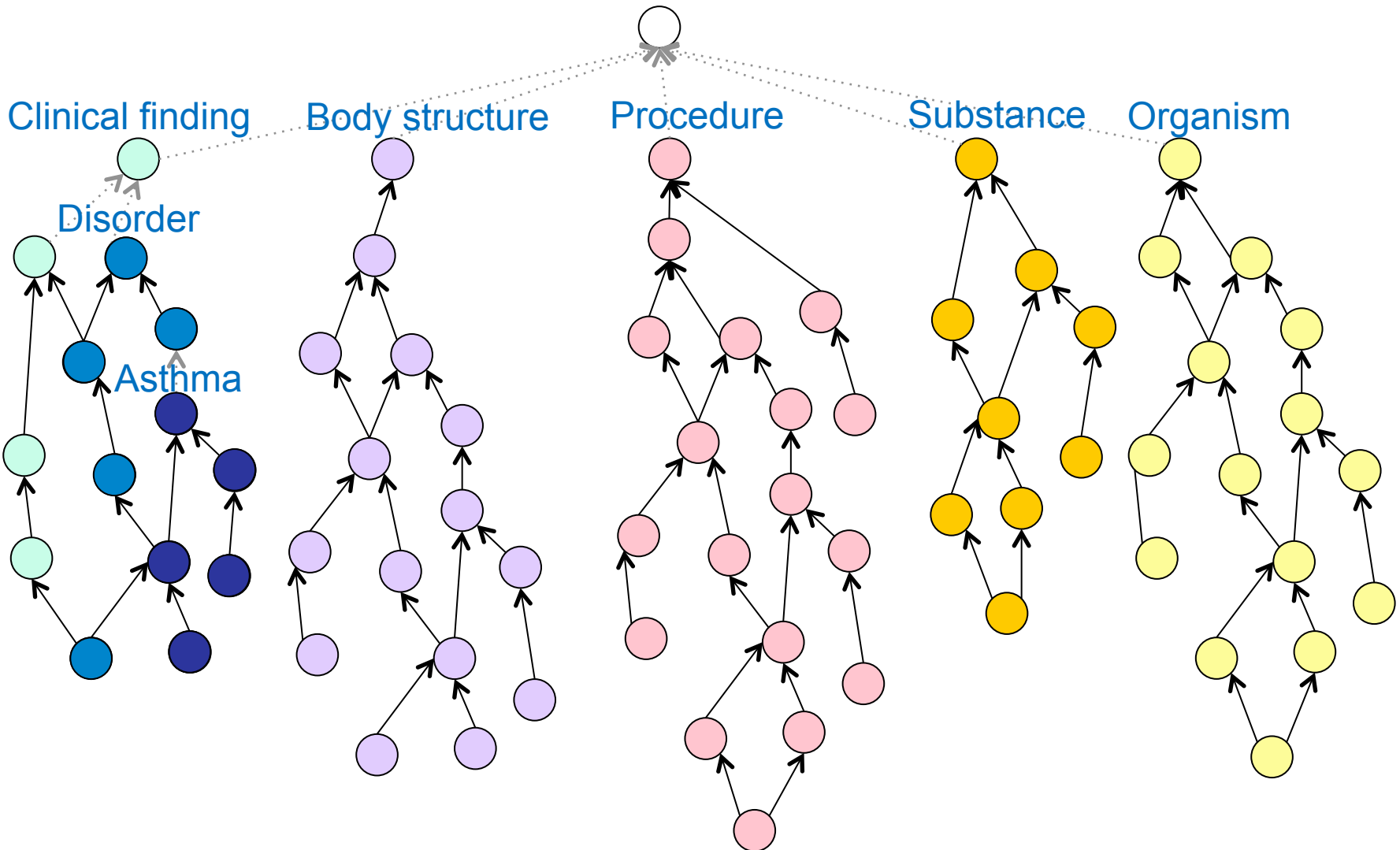
● Infantile myotonia	Infantile myotonia (disorder)
☰ Myocardial infarct	Myocardial infarction (disorder)
☰ Infective myositis	Infective myositis (disorder)
☰ Infectious myositis	Infective myositis (disorder)
☰ Inflammatory myopathy	Inflammatory disorder of muscle (disorder)
☰ Infective myocarditis	Myocarditis due to infectious agent (disorder)
● Infestation by Myobia	Infestation caused by Myobia (disorder)

Constraining Searches by Language or Dialect



Constraining Searches by Subtype

SNOMED CT



Constraining Searches by Subtype – Example

Unconstrained:

The screenshot shows the Snow Owl MQ search interface. The search bar contains 'renal calculus' and shows 37 results. The search criteria are set to 'Match All of the following rules: Status is Active for Concepts Properties Descriptions'. The results list includes:

- Kidney stone (disorder)
- Calcium renal calculus (disorder)
- Uric acid renal calculus (disorder)
- Calyceal renal calculus (disorder)

“renal calculus”
37 results

Only subtypes of disease:

The screenshot shows the Snow Owl MQ search interface with a constrained search. The search bar contains 'renal calculus' and shows 12 results. The search criteria are set to 'Match All of the following rules: Status is Active for Concepts Properties Descriptions' and 'Concept ancestor is Disease'. The results list includes:

- Kidney stone (disorder)
- Calcium renal calculus (disorder)
- Uric acid renal calculus (disorder)
- Calyceal renal calculus (disorder)
- On examination renal calculus (disorder)

Fully Specified Name	Status	Module
Kidney stone (disorder)	active	SNOMED CT core
Calcium renal calculus (disorder)	active	SNOMED CT core
Uric acid renal calculus (disorder)	active	SNOMED CT core
Calyceal renal calculus (disorder)	active	SNOMED CT core
On examination renal calculus (disorder)	active	SNOMED CT core

“renal calculus”
(disorders only)
12 results

Improving Search Speeds

- Real time searching
 - Don't wait for the search button to be pressed
- Indicate estimated number of matches before search
 - Give the user feedback ... if nothing matches their phrase they should stop typing and consider rephrasing
- Optimize indexing
 - Do not assume a generic search algorithm is the best way to search a terminology like SNOMED CT
 - Implement filters for constraints in ways that minimize impact on search performance

Order Search Results Rationally

- Shortest matching results first
 - More user friendly than alphabetical ordering

The screenshot shows a search interface with the following components:

- Search Header:** "Search" with a refresh icon.
- Options Panel (Left):**
 - Search Mode:** Partial matching search mode (dropdown)
 - Status:** Active components only (dropdown)
 - Group by concept:**
 - Filter results by Language:** english (386)
 - Filter results by Semantic Tag:** disorder (382), situation (2), procedure (2)
- Search Input:** "Type at least 3 characters ✓ Example: shou fra" with a search box containing "lung disorder".
- Results:** "386 matches found in 0.173 seconds." A table of results is shown, with the first three items circled in a blue dotted line. A blue arrow points from the word "Shortest" at the top to "Longest" at the bottom, indicating the sorting order.

Match Length	Result
Shortest	Lung disorder
	Disorder of lung (disorder)
	Disorder of lung (disorder)
	Lung cyst (disorder)
	Lung cyst (disorder)
	Blast lung (disorder)
	Blast lung (disorder)
	Uremic lung (disorder)
	Uremic lung (disorder)
	Burn of lung (disorder)
	Burn of lung (disorder)
	Dry rot lung (disorder)
	Dry rot lung (disorder)
	Unilobar lung (disorder)
	Unilobar lung (disorder)
Longest	Farmers' lung (disorder)

Distinguishing Identical Terms for Different Concepts

Search

Options

Search Mode: Partial matching search mode ▾

Status: Active components only ▾

Group by concept

Filter results by Language

english 1333

Type at least 3 characters ✓ Example: *shou fra*

hernia

1333 matches found in 0.22 seconds.

☰ Hernia	Hernia of abdominal cavity (disorder)
● Hernia	Herniated structure (morphologic abnormality)
● Herniation	Herniated structure (morphologic abnormality)
● Hernia sac	Hernia sac (morphologic abnormality)

Identical terms...

...yet concepts are distinct, and in separate hierarchies.

Avoid Displaying the Same Concept More than Once

- Filter search results by description type
- Filter search results by closest match

Search

Options

Search Mode: Partial matching search mode ▾

Status: Active components only ▾

Group by concept

Filter results by Language

english 372

Type at least 3 characters ✓ Example: *shou fra*

lung disorder

372 matches found in 0.128 seconds

☰ Lung disorder	Disorder of lung (disorder)
☰ Lung cyst (disorder)	Lung cyst (disorder)
● Blast lung (disorder)	Blast lung (disorder)
● Uremic lung (disorder)	Uremic lung (disorder)
☰ Burn of lung (disorder)	Burn of lung (disorder)

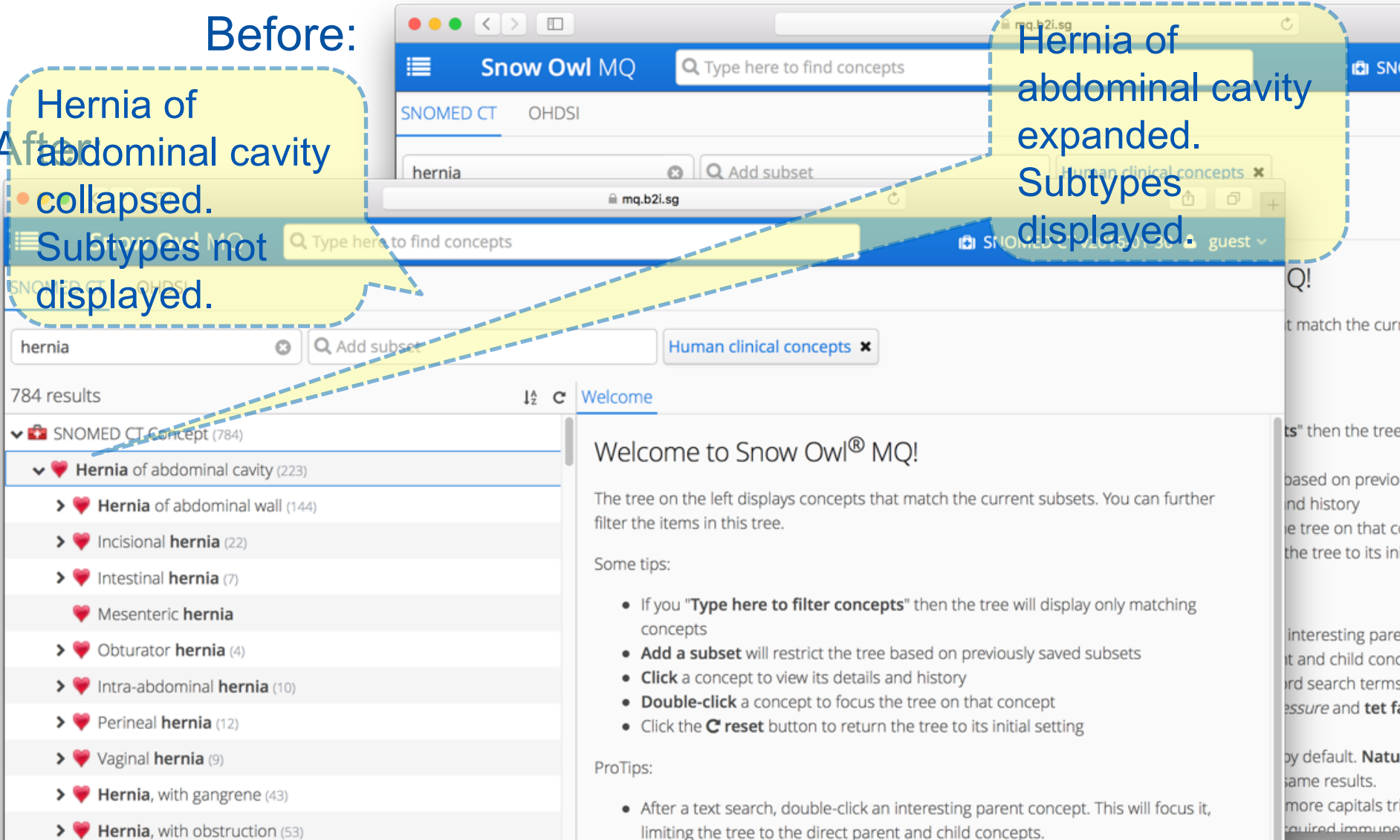
Before: Two synonyms for Disorder of lung (disorder)

Rationalize Search Results by Subsumption

Before:

Hernia of abdominal cavity collapsed. Subtypes not displayed.

Hernia of abdominal cavity expanded. Subtypes displayed.



Welcome to Snow Owl[®] MQ!

The tree on the left displays concepts that match the current subsets. You can further filter the items in this tree.

Some tips:

- If you "Type here to filter concepts" then the tree will display only matching concepts
- Add a subset will restrict the tree based on previously saved subsets
- Click a concept to view its details and history
- Double-click a concept to focus the tree on that concept
- Click the **C** reset button to return the tree to its initial setting

ProTips:

- After a text search, double-click an interesting parent concept. This will focus it, limiting the tree to the direct parent and child concepts.

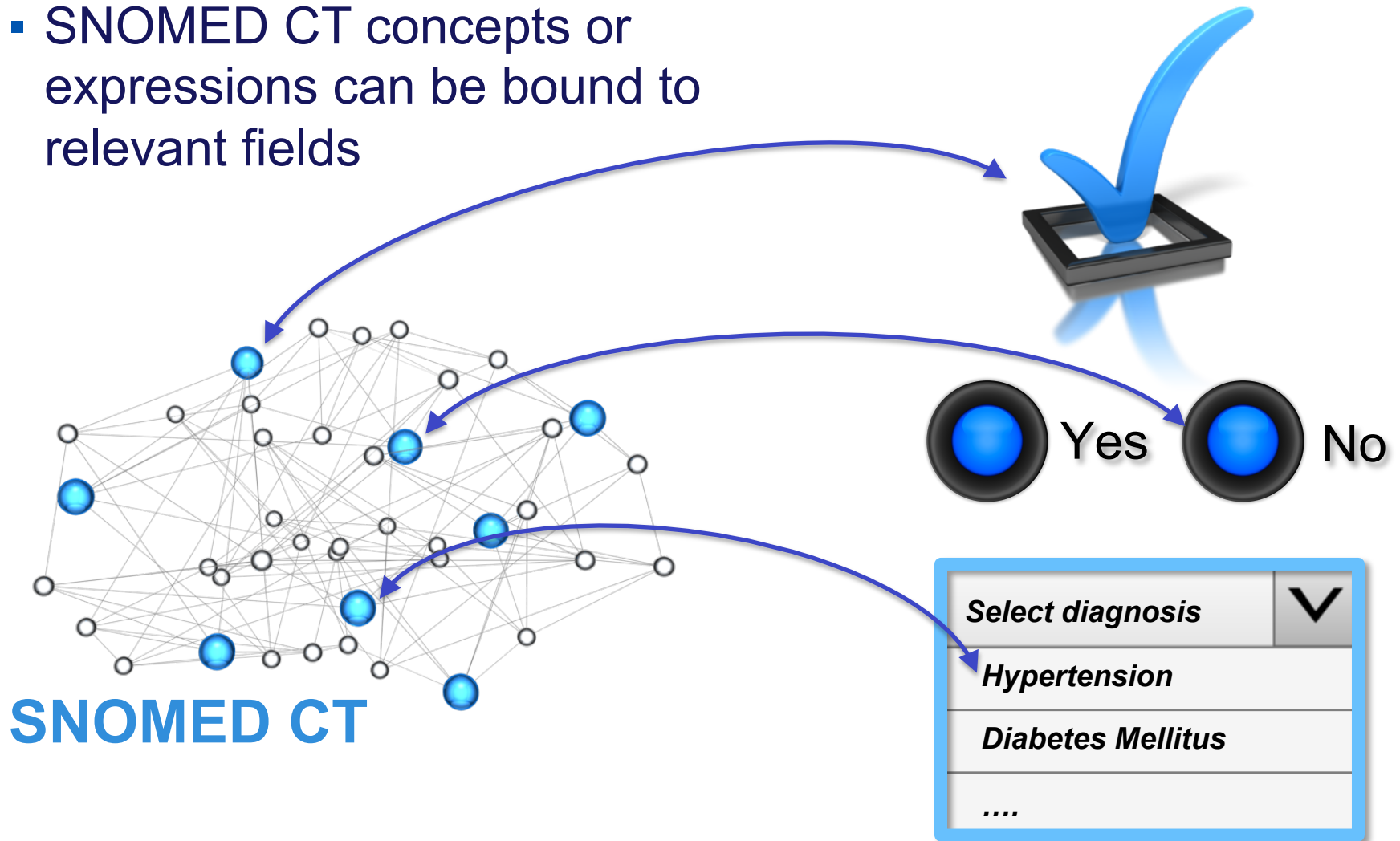
SNOMED CT Data Entry

- Key Requirements
 - Interfaces are easy to use
 - Must facilitate meaning based retrieval
- Data Entry Techniques
 - Structured
 - Characteristics and tools
 - Capturing Clinical Detail with Postcoordination
 - Semi-Structured
 - Combining Structured with Free Text
 - Natural Language Processing
- Consideration of Context
 - Interface Design and Data Representation



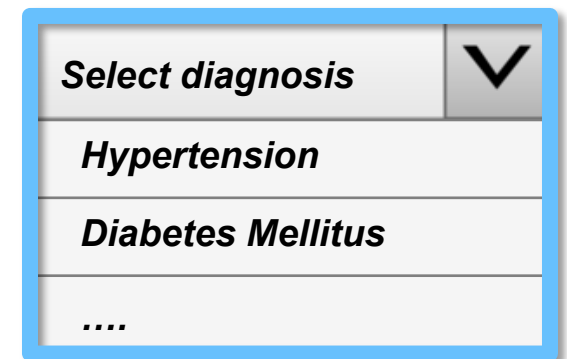
Characteristics of Structured Data Entry Interfaces

- SNOMED CT concepts or expressions can be bound to relevant fields



Characteristics of Structured Data Entry Interfaces

- SNOMED CT expressions can be bound to a data entry tools such as
 - Check boxes
 - Radio buttons
 - Selection lists
 - Graphical selection
- When these tools are used to enter data, the bound SNOMED CT expressions can be stored



Capturing Clinical Detail with Postcoordination

Select hip procedure:

Fixation of hip

Total replacement
of hip

Hip joint incision

Select hip prosthesis



...

Sheehan total hip prosthesis

Elite total hip prosthesis

Capturing Clinical Detail with Postcoordination

52734007 |total replacement of hip |:
 363699004 |direct device| = 314580008
 |Sheehan total hip prosthesis|

Select hip prosthesis



Sheehan total hip prosthesis



Capturing Clinical Detail with Postcoordination

```
373573001 |clinical finding present|: { 246090004 |
associated finding| = (65363002 |otitis media | : 246112005 |
severity| = 6736007 |moderate|,
246456000 |episodicity| = 255217005 |first episode|) }
```

Select inflammatory disorder of ear:

Select...	▼
Otitis media	
Otitis externa	
Otitis media	

Specify severity:

- Mild
- Moderate
- Severe

Specify episodicities:

- First episode
- Old episode
- New episode



Combining Structured Data with Free Text

Clinical application

Physical Examination

Head:

... ..

Ears:

Left normal
Right blocked by wax

Eyes:

Large cataract in L. eye.
Scarred right retina ?traumatic.

Mouth
and
Pharynx

Loose UL3 tooth
Ts and As normal

Save

This text field can be bound to
118235002 |Eye / vision finding|

Bindings like this allow relevant text to be selectively retrieved

Bindings like this can also be used to support NLP techniques by restricting the possible concepts to specific hierarchies

Natural Language Processing

- Enables a computer program to analyze and extract meaning from human language
- Clinical NLP uses SNOMED CT's concepts, descriptions and relationships analyze free text



Natural Language Processing

- Enables a computer program to analyze and extract meaning from human language
- Clinical NLP uses SNOMED CT's concepts, descriptions and relationships analyze free text

Challenges

- Spelling errors, grammatical errors, abbreviations, unexpected synonyms, unusual vernacular phrases, hidden contextual information



<http://clinithink.com/clix-notes/>

clinithink

Logout

Unstructured Text Input

Update Terms Acronyms Spellings

Patient's mother has history of epilepsy.

Clinical text entered:
"Patient's mother has history of epilepsy."

Encoded data (Expression):

243796009 |Situation with explicit context| :
{408732007 |Subject relationship context|
= 72705000 |Mother|, 408731000 |
Temporal context| = 410513005 |Past|,
246090004 |Associated finding| =
84757009 |Epilepsy|, 408729009 |Finding
context| = 410515003 |Known present|}

Structured Output

Standard View Filtered View Advanced View

SNOMED

Fullscreen

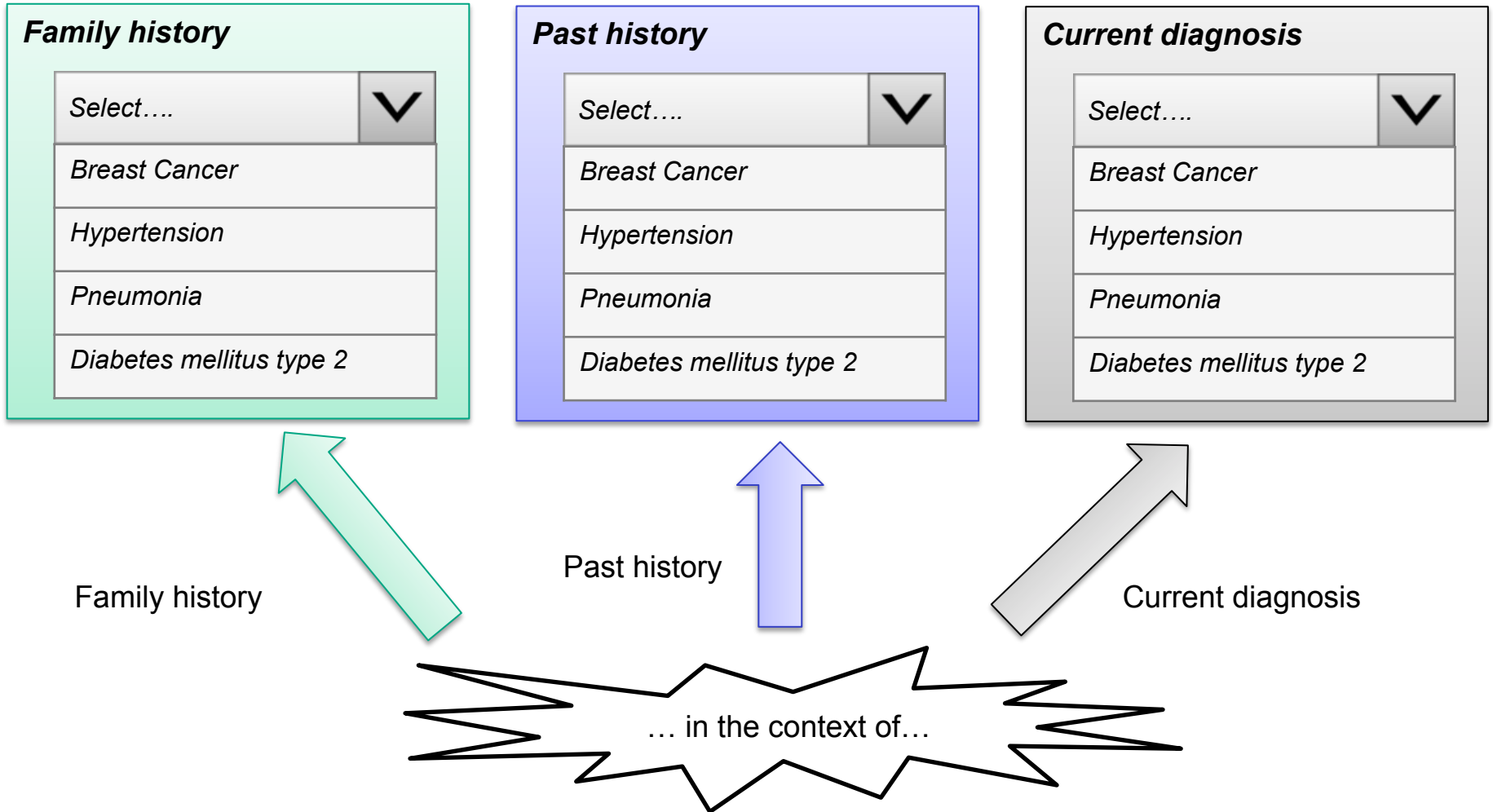
UID: 6b729552-8e06-4f35-84b8-66a850656126 Type:
LRAFindingObservation obs_time: UNSPECIFIED session_time:
UNSPECIFIED meaning:

```
243796009 | Situation with explicit context | :  
{408732007 | Subject relationship context | =72705000 |  
Mother |  
,408731000 | Temporal context | =410513005 | Past |  
,246090004 | Associated finding | =84757009 | Epilepsy |  
,408729009 | Finding context | =410515003 | Known present  
|  
}
```

Knowledge Links

Cross Maps

Interface Design and Data Representation



Search and Data Entry

For more information please refer to:

- Search and Data Entry Guide:
<http://snomed.org/searchguide>

The screenshot shows a web browser window displaying the SNOMED International Search and Data Entry Guide. The browser address bar shows the URL confluence.ihtsdotools.org. The page title is "Search and Data Entry Guide". The main content area features the SNOMED International logo and the text "Leading healthcare terminology, worldwide". Below this, a paragraph describes the guide's purpose: "The Search and Data Entry Guide provides advice on two related activities that are essential for use of any code system: finding a term and saving the term and related code into the record. The first part of this guide is concerned with searching the content of SNOMED CT to find concepts that represent particular clinical ideas. The second part of the guide is concerned with ways to use SNOMED CT to support entry of relevant clinical information in electronic health records." The page also includes a "Web browsable version" link (<http://snomed.org/searchguide>), a "SNOMED CT Document Library" link (<http://snomed.org/doc>), and a copyright notice: "© Copyright 2017 International Health Terminology Standards Development Organisation, all rights reserved." The page footer contains a disclaimer: "This document is a publication of International Health Terminology Standards Development Organisation, trading as SNOMED International. SNOMED International owns and maintains SNOMED CT®. Any modification of this document (including without limitation the removal or modification of this notice) is prohibited without the express written permission of SNOMED International. This document may be subject to..."

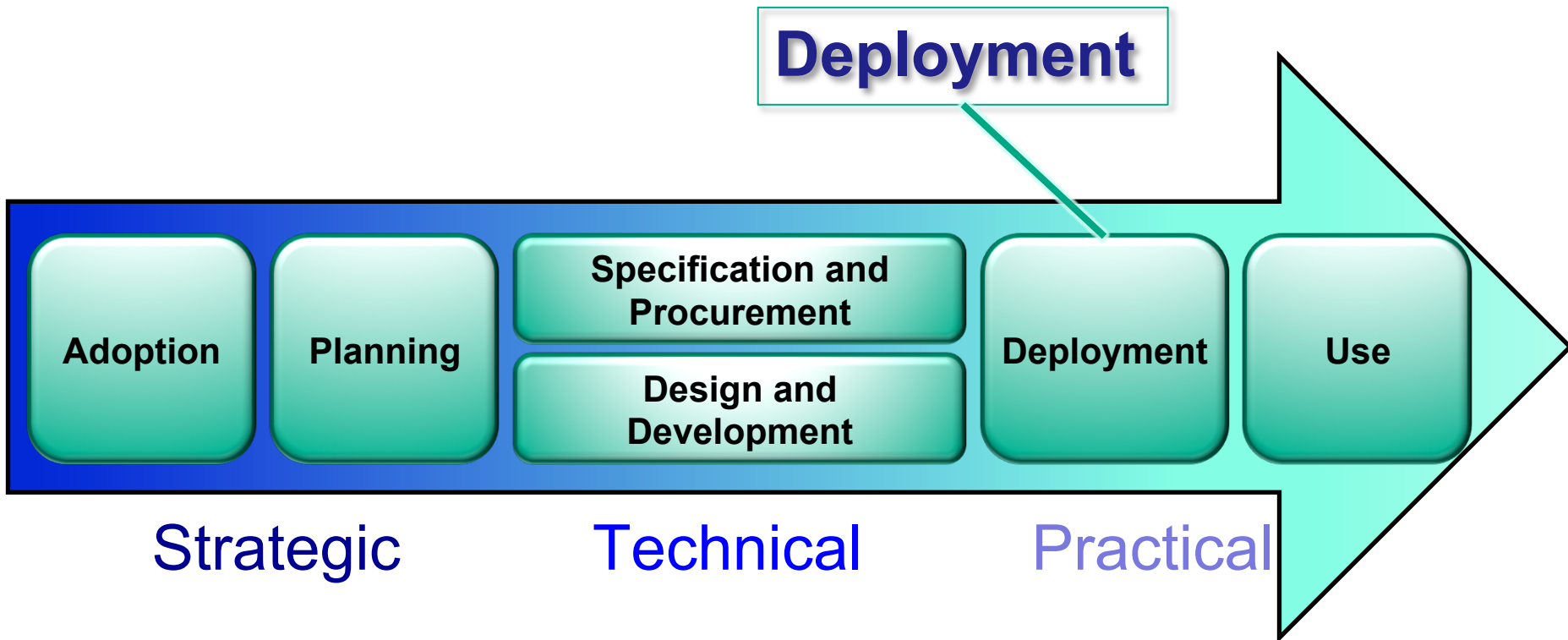
Search and Data Entry Guide

Search this document

Contents

1. Introduction
2. Introduction to Search
 - 2.1. Search
 - 2.2. The Importance of Effective Search
 - 2.3. Using SNOMED CT Features to Support Optimized Searches
3. Use Cases for Searches
 - 3.1. Use Cases Directly Connected to Data Entry
 - 3.2. Use Cases Where Search Browsers Are Required
4. Optimizing Searches
 - 4.1. Search by Text
 - 4.2. Search by Identifiers
 - 4.3. Extended Searches

SNOMED CT Implementation Stages



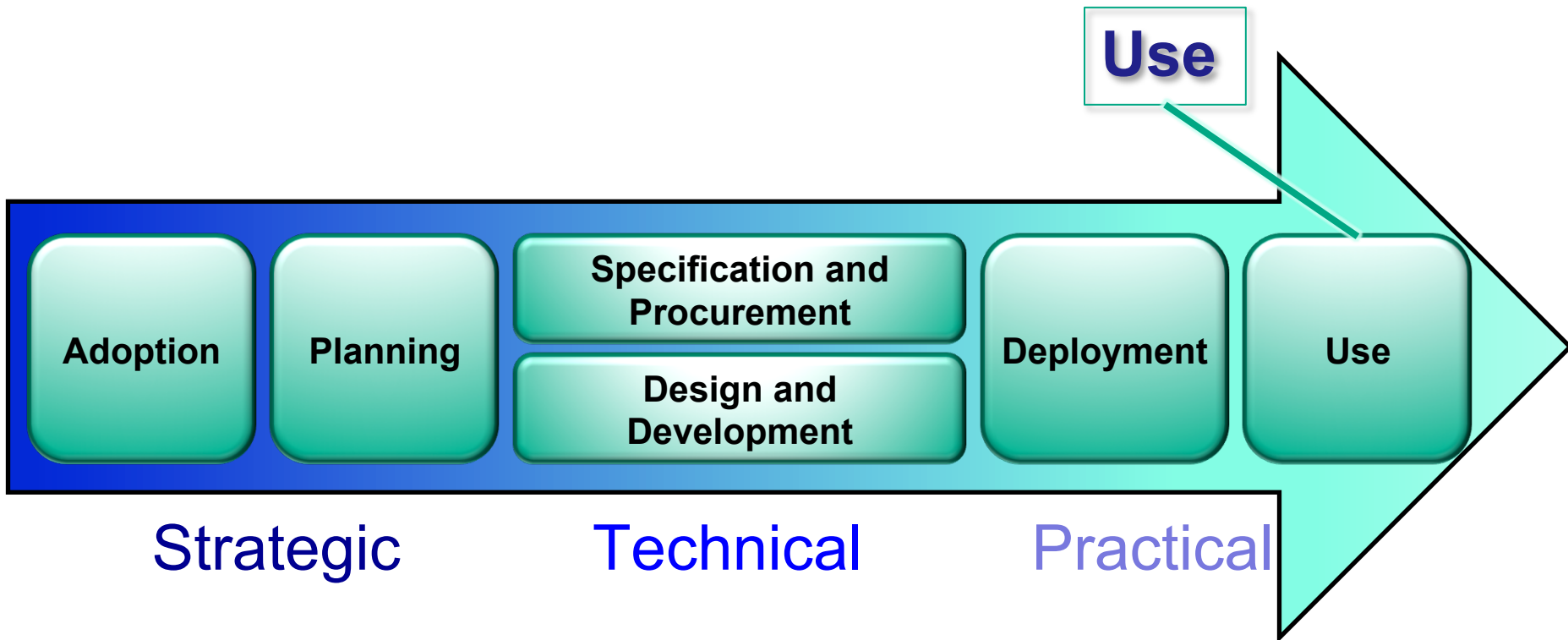
Deployment and use of SNOMED CT Enabled Systems

- **Delivery**
 - Installation
 - Resolution of dependencies and integration of systems
- **Configuration for specific uses and specialties**
 - User interface configuration
 - Report and query configuration
- **User training including**
 - Clinical users
 - Reporting and analytics
- **Maintenance**
 - SNOMED CT version updates

Deployment Needs Informed Users

- Inform all users about benefits
 - Focus on key features and benefits of meaning-based retrieval
- Involve clinical users in configuration decisions
 - Adapt data capture and display to fit working practices in different departments
 - For example - ensuring searches and pick lists are relevant
- Inform data analysts about SNOMED CT semantics
 - SNOMED CT provides benefits for analytics
 - Full benefit realization requires awareness of the logical semantic definitions provided by SNOMED CT
 - Engage analysts in configuring reports that use these features to meet requirements

SNOMED CT Implementation Stages



Use needs Motivated Users

- Involve ‘clinical champions’ who understand
 - The requirements that drive day to day use of an EHR
 - The way the EHR system meets those requirements
 - The contribution of SNOMED CT to delivery of benefits
- Provide users with practical benefits
 - Motivate consistent use by providing useful and interesting information derived from their use of the system
- Respond to user input
 - Address issues and emerging requirements

SNOMED CT in Use Around the World

- SNOMED CT is used in more than 50 countries
- National policy endorses use of SNOMED CT in several countries, including
 - Australia
 - Canada
 - England
 - India
 - Netherlands
 - Singapore
 - Sweden
 - United States
- Examples of SNOMED CT deployments
 - <http://snomedinaction.org/>



SNOMED in Action - Domains

- Clinical research
 - Public health
- Computerized Physician Order Entry (CPOE)
- Electronic prescriptions
- Immunization history
- Infection prevention
- Electronic health records
 - Hospital, Emergency care, Outpatient, Primary Care, Personal
- Specialties
 - Rheumatology, Pathology, Oncology, Ophthalmology, Optometry, Surgery
- And many more ...

Summary

- Adoption requires identification of specific benefits
- Plan implementation taking account of key objectives
 - Plan implementation as a team effort
- A clear specification of requirements is needed for
 - Procurement
 - Design and development
- When designing and developing
 - Take note of SNOMED CT implementation guidance
- Deployment and use needs informed and motivated users
- Provide users with value from the information they record

Links to Further Information

- Technical Implementation Guide (TIG)
 - <http://snomed.org/tig>
- Vendor Introduction to SNOMED CT
 - <http://snomed.org/vendorsguide>
- Learn More using our E-Learning courses:
 - <http://snomed.org/elearning>
- SNOMED in Action
 - <http://snomedinaction.org>
- SNOMED CT Presentations
 - <http://snomed.org/expo>

- Any Questions ?