5 Implementation Strategies and Considerations

- To what extent will the use of SNOMED CT differentiate this product from others?
- What use cases can SNOMED CT be applied to?
- What migration paths will be offered to customers to move from their current coding system(s) to SNOMED CT?
- Will SNOMED CT be implemented into an existing EHR product or as a new product variant?
- Will implementation be achieved in more than one stage and if so in what stages?
- What, if any, parts of the system will be delivered by external providers?
- To what degree, and for what period, will previous designs be maintained in parallel?
- Will SNOMED CT be a design time terminology or a run time terminology?
- Will SNOMED CT be the interface terminology or just the storage, interoperability and reporting terminology?

A variety of implementation approaches were outlined in Section 4. This section references the approaches summarized in Section 4, and discusses some potential SNOMED CT implementation strategies, factors influencing implementation success, and possible measures of success.

Staged Implementation

Numerous pathways exist for the incremental implementation of SNOMED CT. These allow control of the timing and degree to which the existing designs and terminology resources are superseded.

Some Vendors have chosen to introduce SNOMED CT as part of a distinct, new product in their line of products. Many Vendors have introduced SNOMED CT in increments, with minimal disruption to their customers or end users. If a Vendor builds a new product, it is likely that a single-stage implementation would be appropriate.

Section 4 summarizes a range of implementation approaches that differ in the extent to which they utilize different features of SNOMED CT.

Single vs Multi-stage Implementations

Single stage implementations can:

- Minimize the impact from multiple cycles of customer training
- Launch a significant variant of a product into the market

Multi-stage implementations can:

- Minimize the impact of any single stage
- Match the extent of change to the needs and desires of the customers

One possible example of a staged implementation could involve a sequence of:

- Initially: Reworking the design of electronic messages used to interoperate with data in other systems, this would then feature SNOMED CT as part of the payload within these messages (Approach 1).
- Subsequently: Reworking existing data extracts and reports, using SNOMED CT indexes, to ensure the successful transition to a reliance on SNOMED CT based reporting (Approach 3).
- Subsequently: Retaining the existing terminology at the user interface but mapping that to a store in which SNOMED CT was recorded in addition to the existing code system (Approach 4)
- Subsequently: Migrating to the use of SNOMED CT at the user interface for new record entries (Approach 5).
- Subsequently: Adopting new analytics tools which exploit the meaning held in SNOMED CT (Approach 7).
- Subsequently: Extending the use of SNOMED CT to capture more structured data as SNOMED CT expressions (Approach 9).
- Finally: Using all SNOMED CT features throughout the EHR (Approach 10).

Relationships and Dependencies

Commercial and technical concerns about dependence on third-party components may be a valid reason for in-house development of all the required 'terminology services'.

However, a range of off-the-shelf terminology resources, such as SNOMED CT subsets, may be available to reuse, for example, to improve the user's data entry experience. Some of these resources will be usable worldwide and free of charge, while others may be available under some type of license. A dependence on a third party to maintain derivatives, such as subsets, can be eliminated by taking that responsibility in-house. Three distinct options are therefore:

- Adopt and use a third party terminology resource (e.g. a subset), relying on the owner to maintain them.
- Adapt an existing terminology resource (e.g. a subset), and so take on responsibility for maintaining a separate version.
- Enter into a collaborative relationship e.g. to jointly maintain the subset.

Language and Dialect strategies

SNOMED CT implementation can greatly simplify the configuration of an EHR product with terms expressed in the language or dialect required by the customer. A SNOMED CT implementation strategy should exploit the benefits of SNOMED CT for language and dialect localization. For example, using a SNOMED CT language reference set, which represents the preferred and acceptable terms in a given language or dialect, a subset used to populate a drop-down box can be simply re-configured to show terms in a different dialect. For other parts of a localization, such as the headings in a form, it is also possible to use SNOMED CT language reference sets as a reference source. The extent of use of language reference sets should be considered as part of a product strategy.

To exploit the language and dialect capabilities of SNOMED CT, a Vendor can use the localized content provided by a National Release Center.

A language or dialect variant needed by the customer can be used in any of the following scenarios:

- The SNOMED CT International Edition is used and this reflects the language used in the healthcare records.
- A specific dialect of a language is needed, such as Australian English, UK English, or US English.
- There is a dominant local spoken language, but this is not used in healthcare or health records (which are recorded using a language or dialect already available in SNOMED CT).
- Multiple languages are spoken, e.g. Canada, where any of those may be used.
- A translation of SNOMED CT is intended only to be used as a reference terminology i.e. not for use at the user interface.

Measures of Implementation Success

The extent to which a SNOMED CT implementation is successful can be evaluated in many ways, including the evidence-based evaluation of:

- Delivery of the planned benefits, along with continuity of existing value provided by the system
- The ability of customers and users to accommodate the changes with minimal training or disruption
- Extent and quality of interoperation with external systems and its value to customers: Electronic messages which retain the meaning of the clinical content, with effective reuse in the receiving system
- Uninterrupted, undisturbed operation of the healthcare enterprise through the period of introduction and use of SNOMED CT
    - Health outcomes of patients
    - Staff satisfaction
    - Enterprise remuneration and/or prestige
- Peer-recognition for good work
- Success in exploiting shared works such as off-the-shelf subsets or queries
- Minimal cost and maximal benefit from successive releases of SNOMED CT

Factors which Influence Implementation Success

Vendor Perspective

The factors which may influence implementation success, from a vendor perspective, include:

- Careful planning, understanding of key objectives and engagement with customers
- Successful matching of the user needs to the relevant SNOMED CT features and setting realistic goals for the delivery of specific benefits
- Selection of an appropriately staged implementation roadmap giving continuity of service plus an incrementally improved user experience
- Judicious selection of techniques and tools
- Consistent representation of stored clinical information
- Optimization of information retrieval and analysis
- Maximizing the reuse of existing configuration artifacts such as queries or subsets
- Separation of the terminology: discrete configuration data and avoidance of hard coding of terminology directly into software code

Customer Perspective

The factors which may influence implementation success, from a customer perspective, include:

- Ease and effectiveness of data entry and display of SNOMED CT. For example, speed of data entry, ease of search and navigation, limited search scope based on the context, aggregation of details, and highlighting of critical information are all important techniques for busy clinicians
- Minimal additional configuration and training burden for the users
- Adequate opportunities to adjust the product and its configuration for local needs, including exploitation of pre-existing, local designs
- Significant value from their own preparatory work to deploy the product and associated services
- Quality of the product, its flexibility and a future value sufficient to retain it beyond the current contract period