Trust Attributes and Recommendations from the TFWG

The Patient-Centered CDS Learning Network convened experts for a Trust Framework Work Group (TFWG), who developed the 9 trust attributes and 33 recommendations for building trust in knowledge artifacts within a CDS ecosystem (below). Read the complete white paper at:

pccds-ln.org/tfwg

1. Competency

An actor is deemed to be competent in the role played in the CDS ecosystem. For example, an author of a knowledge artifact should be judged competent, qualified, and an appropriate authority to develop the artifact based on factors such as past performance, professional qualifications, or certifications.

Recommendations:

1.1 Authors have descriptions with background information including affiliations, years participating, and frequency of participation.
1.2 Authors promote respect and dignity when providing feedback.
1.3 Authors are credentialed by an agreed-upon entity through education or training, experience, and dependability.
1.4 Knowledge professionals are certified that they are competent in the knowledge management lifecycle, competently interpret, encode, and execute knowledge, and are competent of issues in conflict of interest.
1.5 Competency should apply to both individuals and organizations.

2. Compliance

A knowledge artifact should conform to defined standards and criteria including copyright and intellectual property.

Recommendations:

2.1 Knowledge artifacts provide human-readable and machine-readable forms (whenever applicable) as well as supporting references.
2.2 Knowledge artifacts are implemented in compliance with best practices for safe and effective implementation.
2.3 Knowledge artifacts are encoded using current standards for controlled medical terminologies, value sets, clinical data models, and knowledge representation formalisms.
3. Consistency

A knowledge artifact should repeatedly generate expected results over time when given requisite inputs (e.g., patient data or supporting CDS triggers).

Recommendations:

3.1 Authors take on responsibility of ensuring accurate knowledge translation and specification of a knowledge artifact.

4. Discoverability and Accessibility

The evidence behind an executable knowledge artifact is documented (discoverable) from metadata associated with the artifact. Artifacts and their contents have clear and appropriate reasoning for recommendations available to the end users. Artifacts are accessible to potential users, including patients and policymakers.

Recommendations:

4.1 Knowledge is made accessible through search technology in conjunction with effective and helpful key terms.
4.2 Knowledge can be reliably searched for and found over time, so that users can find the same knowledge across successive versions.
4.3 References to supporting evidence are clearly labeled and linked (preferably deep linked) to relevant supporting information.
4.4 Data that inform an artifact can be found and accessed.

5. Evidence-based

The evidence instantiated within an artifact must apply to the clinical condition it is meant to support. Limitations are stated clearly, and the evidence supporting the clinical guideline, predictive model, etc. in an artifact is substantiated and has clear clinical appropriateness.

Recommendations:

5.1 Metadata indicate the date that evidence was originally published, and the date that evidence was last reviewed.
5.2 Metadata state any known limitations, restrictions, or exclusions to any given evidence.
5.3 Artifacts contain references to the evidence base on which they are based, including both narrative guidelines and the data supporting those guidelines.
5.4 Artifacts include metadata for all supporting citations.
5.5 Artifacts include evidence about its method (e.g., order set v. alert), usage history, and available outcomes.

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6. Feedback and Updating

Stakeholders have the functional ability to provide timely feedback and suggest improvements to a knowledge artifact. Feedback may be directed to diverse actors in the ecosystem (knowledge engineers, knowledge authors, etc.).

**Recommendations:**

6.1 Systems capture error logs and feedback about an artifact within the context of its use (e.g., EHR system, clinical setting, crash data etc.).
6.2 Systems provide feedback mechanisms including means for users to ask questions about an artifact’s context of use.
6.3 Metadata capture the dates an artifact was first and last published, with update dates in between.
6.4 Artifacts contain a auditable records of updates and changes over time.
6.5 Artifacts are updated based in part on feedback from operational performance over time.
6.6 Authors provide bidirectional feedback to one another so to rate (and improve) each other’s work.

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7. Organizational Capacity

An organization that sponsors knowledge artifact development or implementation (or both) should have the necessary funding, staffing, and resources to maintain a knowledge artifact and measure its effect(s).

**Recommendations:**

7.1 Develop skills and capacity of staff, systems, and resources that support implementation, ongoing evaluation, feedback, communications, and governance. Include implementation guidance with artifacts that conveys the necessary resources to implement that artifact.
7.2 Knowledge artifacts include implementation guidance that conveys the necessary resources to implement that artifact.
8. Patient-centeredness

When possible, a knowledge artifact should leverage patient-centered outcome research findings and/or patient-specific information (the patient’s clinical data, patient-generated health data, patient-reported outcomes) to support decisions by individual patients, their approved caregivers, and/or their care teams.

Recommendations:

8.1 Requirements for patient-level or patient-generated data input are clearly indicated.
8.2 Evidence that accounts for patient-level or patient-generated data is clearly indicated.
8.3 Consent for use of patient-level or patient-generated data is clearly indicated.

9. Transparency

A knowledge artifact should be applied and used ethically to clearly convey all potential conflicts of interest and disclosures of interest related to its development or recommendation to detect bias or discrimination in its use.

Recommendations:

9.1 Clearly indicated policies describe the procedures for implementing, updating, revising, and removing artifacts.
9.2 Clearly indicated policies address conflict of interest.
9.3 Knowledge artifacts are consistently implemented with licensing agreements and any secondary use rights are explicit.
9.4 Knowledge artifacts are consistently implemented in ways that support equity in health and healthcare.

Read More

View the Trust Framework Work Group’s white paper by visiting the website at:

pccds-ln.org/tfwg