

Personalized Health Navigation

Joint HL7-ISO Program Proposal

2023.05.11 HL7 WGM ~ New Orleans

Todd Cooper, HL7 DEV Co-Chair

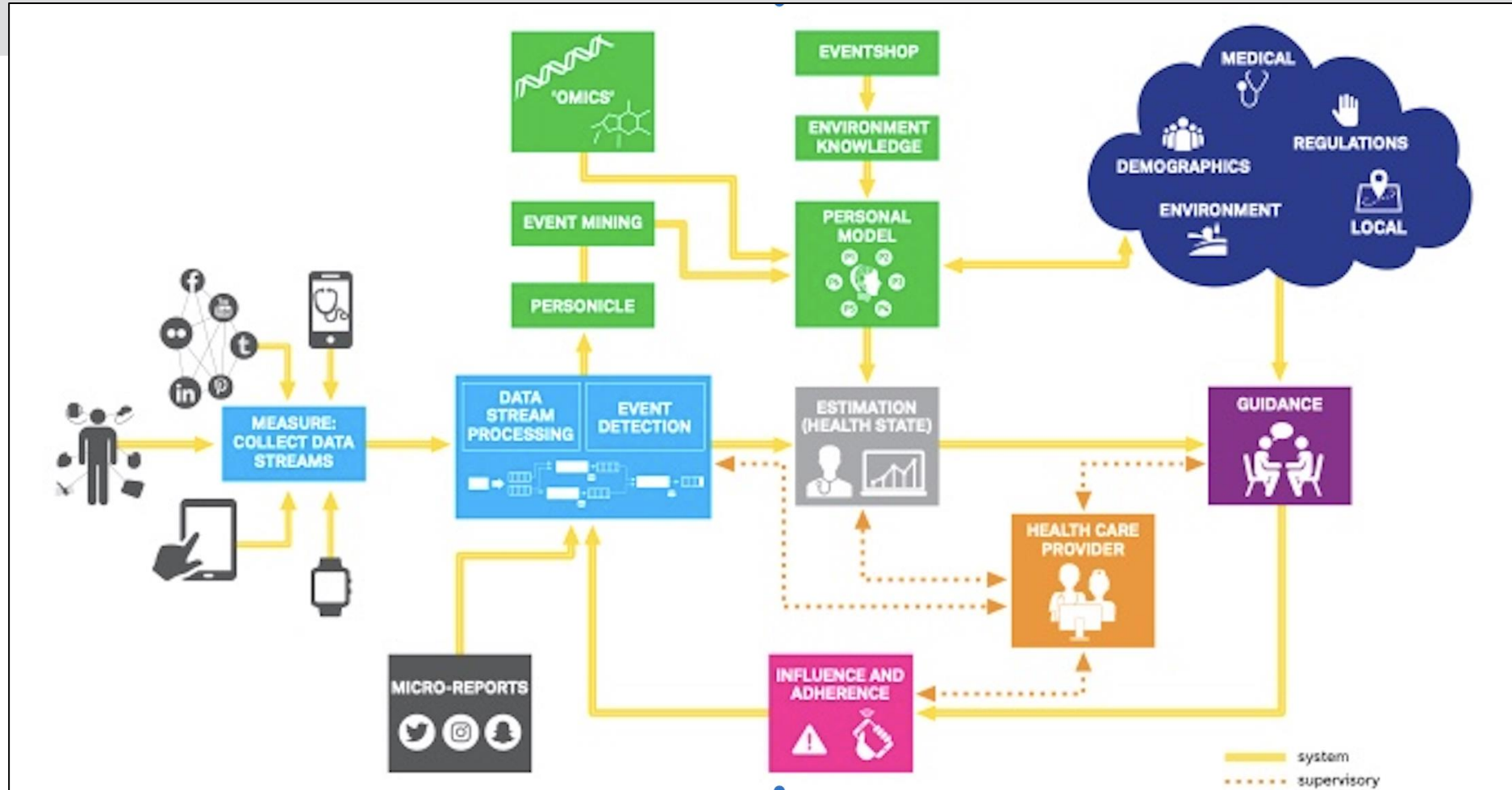
Ramesh Jain, UCI/Institute for Future Health



What is Personalized Health Navigation (PHN)?

“The process of assisting individuals in achieving their health goals by helping them understand their health conditions and providing guidance on food, lifestyle, and healthcare choices.”

ISO 9472-10000 (draft)



See Ramesh Jain’s PHN “conceptual” presentation @ HL7 DEV WGM 2023.05.11.

Why PHN in HL7?

- Synergies in HL7:
 - WGs: Devices, Mobile Health, SOA, Patient Empowerment, O&O ...
 - Accelerators: Gravity (SDOH),
 - SDO Collaboration – *Extensive, active, works!* (ISO, IEEE, ...)
 - With project proposal – *more connections will be surfaced!*
- What's missing in HL7? (Hint: *It's not about health**care** ...*)
- #1 Reason: HL7 provides a robust home for nurturing the ...

PHN Implementation Community!

ISO 9472 PHN Series

ISO 9472 Personalized Health Navigation (PHN)

9472-10xxx Architectural

16

Technical Building Blocks

9472-20xxx Application

11

Subject Area Specifications

9472-30xxx Reports

6

Perspectives on Possibilities!

Note: Only PWIs are on the ISO/TC215/WG11 work program

ISO 9472 PHN Series

ISO 9472 Personalized Health Navigation (PHN)

9472-10xxx Architectural

Part 10000: Architecture (AWI)

Part 10x00: Context monitor (Pre-PWI)

Part 10100: Personal Chronicle (PWI) ³

Part 10x00: Event mining services (Pre-PWI)

Part 10x00: Personal Model (Pre-PWI)

Part 10x00: Knowledge services (Pre-PWI)

Part 10x00: Generative interaction (Pre-PWI) ¹

Part 10x00: Security & Privacy (Pre-PWI)

Part 10x00: Ethics monitor (Pre-PWI)

Part 10x00: Digital Therapeutic (Pre-PWI)

Part 10x00: Autonomy services (Pre-PWI)

Part 10x00: Robot companions (Pre-PWI)

9472-20xxx Application ¹¹

9472-30xxx Reports ⁶

Note: Only PWIs are on the ISO/TC215/WG11 work program

ISO 9472 PHN Series

ISO 9472 Personalized Health Navigation (PHN)

9472-10xxx Architectural

16

9472-20xxx Application

Part 20100: Food & Nutrition (PWI)

Part 20200: Purpose-oriented Self-health Activities (AWI)

Part 20x00: Fitness (Pre-PWI)

Part 20x00: Mental Health (Pre-PWI)

Part 20x00: Cardiac Health (Pre-PWI)

Part 20x00: Ayurvedic Medicine (Pre-PWI)

Part 20x00: Senior Health (Pre-PWI)

Part 20x00: Dementia (Pre-PWI)

2

Part 20x00: Medication Monitoring (Pre-PWI)

9472-30xxx Reports

Part 30100: Traditional Medicine (PWI)

Part 30x00: Digital Therapeutics (Pre-PWI)

Part 30x00: Empathetic Ethical Guidance (Pre-PWI)

Part 30x00: Community Support (Pre-PWI)

Part 30x00: Digital Twins

Part 30x00: Smart Cities (Pre-PWI)

ISO 9472-10000 PHN Architecture ... on OSD!

The document is being crafted in the new ISO Online Standards Development (OSD) platform.

[Ed. Note: The following graphic illustrates the PHN paradigm supported by this reference architecture, beginning with measuring detailed real-world information, using that information to estimate their status or “location” and then ultimately providing guidance on how to optimally achieve their health goals.]

[Ed. Note: Consider using the PHN Cybernetic “simplified” model graphic from Ramesh]

Figure 2

Measure
Data about the user and relevant environment are collected, processed, and stored continuously, including how the latest actions are affecting the user.

Estimate
The health state of the user is estimated from multimodal data streams and models. Measurements are also transformed to update models. Quantitative health status at every moment is provided.

Model
The physiological and psychological patterns are modeled for each individual and used to further personalize the system estimates and guidance.

Act
Actions in the real world are executed by the user, another human, or through an automated system.

Guide
Given the goal, model, and health state estimate, the optimal routing and next steps for real-world execution are calculated. The best method by which actions should be fulfilled includes knowledge of all available resources, context, and the particularities of the user model.

User

Goal

TITLE
PHN paradigm¹

¹ [2] Source: “A Navigational Approach to Health: Actionable Guidance for Improved Quality of Life”, Jain and Nag, IEEE Computer, April 2019.

+ CLAUSE AT SAME LEVEL + SUB-CLAUSE + NUMBERED PARAGRAPH

HL7 PHN Project Proposal

- [Project Proposal PSS-2197](#) *will start the conversation at HL7*

The screenshot shows a Jira issue page for 'Personalized Health Navigation' (PSS-2197). The issue is in 'Draft' status. The 'Details' section includes: Type: Project Proposal, Resolution: Unresolved, Priority: Medium, Labels: None, Project Proposals Draft Message: In order to submit/notify Staff Curator and leadership, you need to transition this by using the Submit button., Ballot Cycle Target: 2024 Fall, and Project Description: Personalized Health Navigation (PHN) is a personal digital health technology that leverages cybernetic systems technologies to enable a navigational approach to health and wellness and healthcare. The reference architecture and application areas for PHN is the subject of a series of ISO/TC215 9472 standards under development. This HL7 project would create FHIR-based implementation guides and APIs to enable real-world implementation of PHN. The reporter is Todd Cooper (todd@ornet.org). The 'People' section shows the assignee as Todd Cooper and the reporter as Jira Admin. The 'Dates' section shows the issue was created and updated on 2023-04-27 at 12:31. A 'Provide feedback' button is visible on the right side of the page.

Project Scope Statements/Proposals / PSS-2197

Personalized Health Navigation

Edit Add comment Assign More Draft Export

Details

Type: Project Proposal Resolution: Unresolved

Priority: ■ Medium

Labels: None

Project Proposals Draft Message: In order to submit/notify Staff Curator and leadership, you need to transition this by using the Submit button.

Ballot Cycle Target: 2024 Fall

Project Description:

- Personalized Health Navigation (PHN) is a personal digital health technology that leverages cybernetic systems technologies to enable a navigational approach to health and wellness and healthcare. The reference architecture and application areas for PHN is the subject of a series of ISO/TC215 9472 standards under development. This HL7 project would create FHIR-based implementation guides and APIs to enable real-world implementation of PHN.

Email: toddcooperafc@gmail.com

People

Assignee: Todd Cooper ⓘ

Reporter: Jira Admin ⓘ

Watchers: 3 Stop watching this issue

Dates

Created: 2023-04-27 12:31

Updated: 2023-04-27 12:32

Provide feedback

Integrated ISO 9472 & HL7 PHN Programs



ISO/TC215/WG11
Personalized Digital Health Informatics

PHN Conceptual Specifications

HL7-ISO Collaboration Agreement



Guides Implementation
Normative References

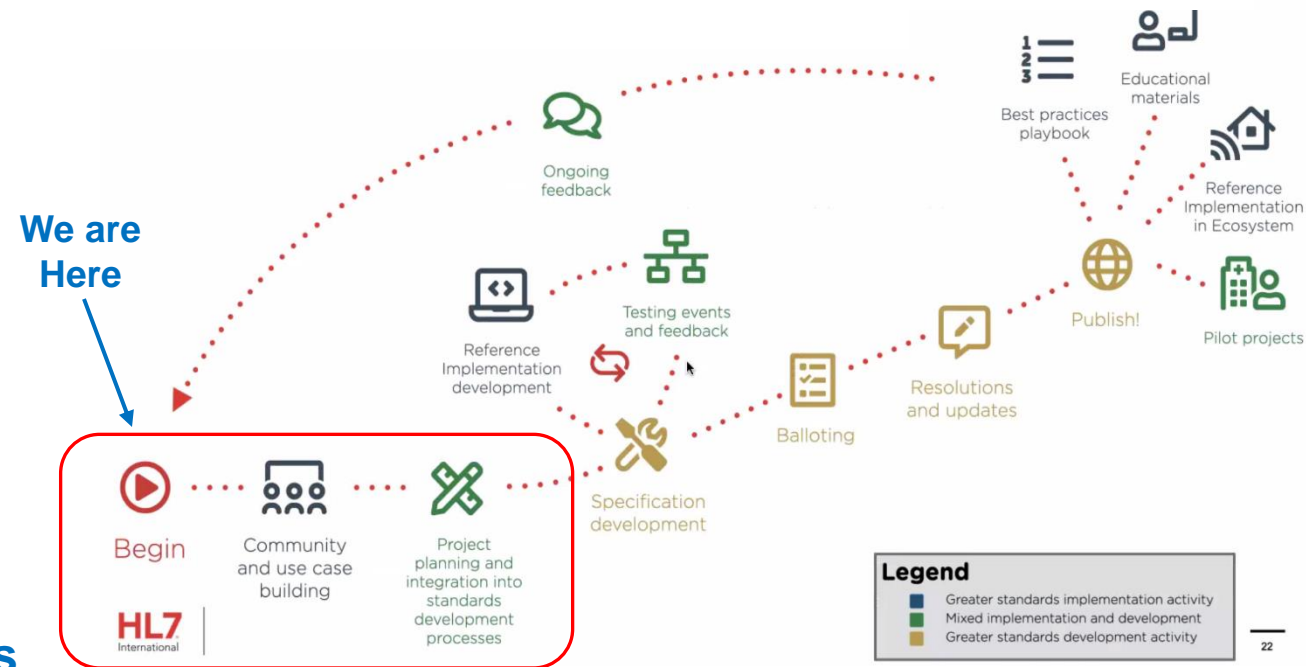
**PHN Implementation
Community & Specifications**

**ISO 9472
Personalized Health
Navigation (PHN)**

9472-10xxx Architectural

9472-20xxx Application

9472-30xxx Reports



Proposal Discussion

Discussion notes:

- (Ed) In the “Human Matrix Project” – Challenge was getting individuals to share personal info (trust)
- (Vince) Data quality at the data element level (metadata) is foundational (garbage in/out) & for personal health data is virtually impossible to achieve
- (Ed) Literacy & Education is perhaps one of the greatest challenges – you can provide advice & guidance – but educating individual to both understand and action the guidance is often where everything breaks down
- (Kosta) Will these need to be recognized by regulatory agencies? (Todd) Well, DTx (which is SaMD) is based on the elements of PHN Architecture ... yes! In some cases ...

NOTE: The discussion was vigorous, sometimes passionate, generally positive, though recognizing the **BIG CHALLENGES** ahead for advancing these concepts!

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