**Agenda**

1. Roll Call
2. Agenda Review
3. Housekeeping
   * WGM report
4. Content Topics
   * Activation within Composition
     + explicit activation on generation of event
     + binding
     + chained orders
     + other perspectives - orchestration, ...
5. Future Meetings
   * Lifecycle Management
   * Scope of Identifiers
   * Comparison of Compound Structures in FHIR
   * Intra-knart referencing
   * Relationship of HeD KNART and FHIR Clinical Reasoning as Languages within API4KP framework

**Attendees**

Lorraine Constable

Brian Alper

Rebecca Baker

Davide Sottara

Wendelyn Bradley

**Meeting Minutes**

1. Overview and description of the upcoming KNART project for new attendees to the group provided by Lorraine
2. January F2F WG update provided by Lorraine. KNART subgroup presented to ITS, CIMI, CQI and CDS. They reviewed material to date particularly about xml schema for composite. Bryn Rhoades has follow-up questions; there is a call with him next Tuesday. Otherwise, no outliers or surprises for anyone. They were fine with the May timeframe and the September ballot. The May ballot was too close to achieve which is why the ballot is set for September.
3. Activation within composition
   * There are a number of building blocks in FHIR. Are we dealing with different pieces of the same?
   * For “Activating,” how do we activate within a composition?
   * In the specification for the KNART spec, there was a trigger, there was a FHIR action in the schema. Davide said was not aware of this change. Noticed - guess FHIR event action, increasingly acquired an event triggered taxonomy, but no one ever proposed it.
   * There is a trigger element that is a data event or timing event.
   * Traditionally, there are 2 -3 ways to do event and detect presence of an event.
   * Time- is as it means. 11a, etc. Triggers it then.
   * Event not necessarily timed by typed, this is where the FHIR event originated, such as "pt shows up" "order Is placed", or other logical.
   * People call this event driven architectures. Every type of event increasingly has a time period. Events have descriptions or data structures. Particular coding of the event. Timing event used along with data events. If type needs a new instance of data structure. Creation of new instance of the thing is considered a data trigger that can be used to the event as the data assertion. In classic event driven architecture to FHIR event. Do not necessarily need the data structure, just type and time like a signal. Because of the FHIR notion, the idea of just having signals. Will need a time, creation of lesion or update of the object is the same date event and all the typing is a data infrastructures.
   * External data as a trigger, idea is not just pulling the instances of the data type. The complex or the piece of the record but watch for new instance of the type. A more general case of the activation within the composite.
   * Essentially interaction between systems there are a few ways. No one ever wanted.
   * For “KNART 1” we know you “KNART” by name. Function of a function calling another function. Decouple can happen by signal or share a common working memory without leaving bread crumbs where consumer creates an object and next watcher has a reaction.
   * Signal based and message based is not exactly equivalent but understand why it has been done that way. It is a reduction in functionality. But this is what it is.
   * Look at the spec, as it exists references strongly the trigger section to indicate the knowledge artifact.
   * Find out how we activate in CQL. Current specs, they do not do that. CQL is an expression language, there are no triggers in CQL. CQL expression may be a filter on an event. Whenever an event there is a payload, CQL expression can be used because it reacts to the event payload. The CQL may filter the new order. For “Not interested” for instance if it is not about antidepressants then it will just go back to sleep.
   * Something references the CQL to create the action. Al can be used to filter existing data structures and assemble data structures. Important aspect in KNART, the action in the AI is create. What is created is specified in CQl. Can evaluate the CQL to create a temporal \_\_\_\_\_\_\_. The object in working memory can trigger another artifact.
   * Davide to go back and see the activity definition in FHIR. It has process semantics, it has scheduling times, participants, and resources.
   * Used activity definition to create reference.
   * Remember a KNART may have a KNART action that is create. The object materialized by the create, could be an action definition that can be the object to instruct.
   * Create contained resources.
   * The activity definition is the result. But how to specify the triggers my not be in the FHIR specification right now. But in CDS hooks, there are data driven actions. The trigger within the EHR creates the response.
   * There are triggers planned.
   * CDS hooks are a pure event driven approach. There is a workflow in the EHR that has actions that are performed. These events are used to awaken the listeners that use the CDS modules. There are rules, plans and pathways. Once awakened, will pull data from the EHR that will work on its own working memory. As part of the execution. New data is materialized. The new data may trigger further new logic.
   * Context or working memory is prepopulated within the medical record. Logic is evaluated within the memory.
   * Process notion has actors, resources, and state. This is a big change. Davide to go back to see how it will impact. Can do much more.
   * Workflow group is attempting to represent in planned definition model. BPM a business process model.
   * Want to represent a resource in FHIR. To be able to tap into activation resource. Both Claude and Davide think it is not good and will have unintended consequences.
   * FHIR is going back to the RIM. Was trying to avoid the RIM problems with FHIR.
   * Full BPM process. To make the pieces interactable. Take HeD orderset and make it into a FHIR orderset has brought mismatches. FHIR does not cover the same space in the same way.
   * PlannedDefinition is exact antitheseis of a composite.
   * BPM is being reinvented instead of just using it.
   * To try to redo that in FHIR will not be recommended.
   * KNART had planned to take the conceptual pieces and show how it interacts.
   * ProcessWorkflow is the union of quote and quote use cases. Our job is to work at the profiles of PlannedDefintion level. Not explicitly designed, only demonstrated by example. Cannot do all ECA rules, just some.
   * Composites, for example an orderset with ECA rule embedded, can have a business process triggered by ECA rules. When properly composed. If take a composite that legitimately assembled, then flatten it into an artifact, is it expressive enough to contain the contextual relationships
   * Not randomly connected expression. There is a pattern you can recognize.
   * Tried to do process modeling in RIM at Mayo 4 years ago, the RIM with basic structure and relationships. It was expressed enough, could capture a pathway. The problem, the patterns in place, 5-6 artifacts at the same time. Had we not known what the pattern was. We could not have seen the impact.
   * Engine consuming RIM had to know how the RIM had been used. Vast exclusivity of the RIM, would have been a massive effort. Equivalent as in CDA is to know what to expect there. The more we go through extra and add attributes, not caring about complexity. Can have exclusivity without complexity. If do not have a way to tone it back down it will not be interoperable.
   * Dealing with straight forward use cases. Less abstract, then much more abstract like Planned Definition resource. This is how you do an orderset with the resource, clinical protocol. The additional complexity.
   * Danger is if you do not use the properly orchestrated composite. Rules that dictate applicability of certain parts. May not be able to discern the different pieces. Try to create it as a blob, consumers will have to decompose the certain pieces there are process engines and other types of things that are specialized because of general reasoning and engines are so expensive they can only handle the complexity. Strain is whoever is building the engine will have decompose the underlying architecture. It may not be reflected in the end product. If resource is polymorphic, can take just the action semantics, just the process semantics. Has to take the process.
   * CQL framework is an expression language.
   * May have to build a rule engine, a scheduler, all is a lot to build from scratch. To make it functional and working from scale. Just to build a rule engine with the capability. IBM and -\_\_ build products, not something a developer can build in their spare time as a hobby.
   * Intent of ECA rules, the content can be used as engines. Clinical reasoning in FHIR where assumption is\_\_\_\_.
   * Task workflow may be interested in additional resources. Clinical reasoning team will be interesting. Former need clear semantics the later needs the complexity. Not sure there is an awareness of the tradeoff. The efforts are siloed enough that the impacts are not clear.
   * Wendalyn and Rebecca agree.
   * Development of engines, the work effort. What is the efficient way to move forward.
   * Have seen a lot of reinventing the wheel.
   * FHIR should have stayed with the clinical action models. Then specify how they can be constrained for clinical use. How what happens in the clinical can be captured. But to recreate the ECA rules where there are 5-15 beforehand does not make sense.
   * Why create engines from scratch.
   * If one could take FHIR as concrete.
   * Domain specific aspects, the business process, if the planned definition can take BPM, the use the machinery for business processes. Nature of the thing, in clinical domain, you have a clinical business, business process.
   * There are 25 years of tools. There a domain agnostic. Go to the core of the processes and the possible variation, can connect and specialize the clinical and financial. To create a constrained for a conlicnk but may have to recreate the process--- named many different methods.
   * Will have to wait another 10 yrs. EHR vendors are still using DFT 2.
   * If we are to create ad hoc, will take 5 years to implement it.
   * Limited definition of creating care plans and care plan. How much ad hoc, and demonstration. Limited for use case. Very limited demo.
   * Can take BPN related technology.
   * FHIR workflow material need to connect to and coordinating with OMG.
   * Need to have the mapping in a profiled way to meet the end goal.
   * Conceptual pieces, even within the HeD schema.
   * Event activation model is tricky. Should not assume HeD. Activations, orchestrations by orchestra of knowledge artifacts is another plan. The plan of the execution engine, the plan in the clinical workflow. Do not conflate the events and triggers of the engine executing the composition. Versus the triggers in the \_\_\_\_.
   * Why in Hed we have actions. In task, we have activities.

**Next steps**

1. Follow-up meeting with Bryn Rhodes next Tuesday for questions from Jan WG meeting.
2. Davide to review the FHIR and evaluate as noted in the discussion.