Blockchain PSIG Meeting Notes

04 April 2019

# Attendees

* Lars Toomre
* Rencher, Robert J
* Nick (Stavros – please put your full name in GoToMeeting)
* Karen Shunk
* Bobbin Teegarden
* Mike Bennett

# Agenda

* Upcoming Activities Planning for this Quarter
* ARTS: Food Supply Chains

The Food Supply Chain topic was the only thing discussed today. This included some useful input from the finance domain (Lars) on kinds of data, that may be usable in retail / food supply chains in this context.

# Meeting Notes

## ARTS

KS: Meeting with ARTS retail group (now part of OMG). Reintroducing the standards to them and clarifying membership requirements.

## Interoperability of Blockchains: Food Supply Chains

KS: What they (ARTS) are stressed about in food supply chains: interoperability of blockchains. Huge.

Really concerned that one player in the middle could bung things up.

### EU Report on Blockchain interoperability standards

There was an EU Report on Blockchain interoperability standards:

Karen Shunk: <https://cointelegraph.com/news/eu-report-calls-for-blockchain-interoperability-standards>

For instance someone could have a proprietary thing that sits in the way. Need to discourage the idea of some proprietary thing that locks in potential clients and loses interoperability.

### Ecosystems

Nick: Karen, Jackrabbit would like to invite the retail group to be a sponsor within out DIDO Ecosystem. I think we can help a lot with this.

## Interoperability and oracles (small o)

BT: Can state that a Supply Chain is broken if there is some incompatibility between blockchains, or some non-standard thing.

oracles form some interface but there is no clarity on whether you can get from one bridge to another.

They were happy to hear that GS1 is participating in OMG retail but the concerns are wider.

What the issue is technically (and whether it is an area OMG can contribute to) is unclear - but would appreciate our help.

BT: We should aim to standardize the oracle switching between these. Like CORBA.

NS: The Jackrabbit DARPA grant for test environment would a good place to test this.

Maybe get the Retail group to set up or sponsor an ecosystem. We (DIDO) call that an Exchange. Set up a bunch (150) of nodes each of Ethereum, IBM, the others.

BT: Exchange in DLT is typically exchange of money.

NS: Refers to anything that needs to be exchanged between nodes in different DLT environments.

Even within Ethereum there may be incompatible formats.

The need for a test environment is strong.

BT: 2 levels (kinds?) of exchange: data and coinage. oracles are the underlying technology in the latter.

oracles are something that goes outside of the DLT world.

oracle v exchange (of information)

e.g. might have own barcode and exchange this for something in GS1. Need to know how to exchange that information. Not just transfer that information.

This is how to exchange content.

### Protocol

Supply chain breakdown would be in terms of protocol - the kind of messages being exchanged.

This is distinct from the exchange of value.

KS: The problem is: similar to railroad gauge i.e. a protocol problem.

## Supply Chain vs Protocols

This is more in the oracles area. What is happening in the supply chain?

KS will be at an event next week on this, can get some clarity.

If we can formulate questions today, she can ask them what their concerns are.

The last thing they need is another regular meeting with us. If we can figure out enough of their concerns, have one discrete session with them to flesh out the specific concerns - they would probably do that.

### Audience?

Grocery CIOs and some of their direct reports.

Next week: Retail Robotics and AI conference at North Western.

Blockchain is a real concern for them.

### Scenarios

MB describes a possible scenario - is that the one?

That might be one, likely there are more.

So they are seeing the potential for one such scenario, aware of the risks rather than a specific thing that is failing now.

## Use Cases

Need to map out some potential use cases where this might crop up.

## Conferences

What conference (above): CIO Council of the Food Conference. KS covering standards in OMG, and in Q&A the concerns were mentioned about the Blockchain things. Some of the same people will be there at the event next week. So we should sketch out some possible use cases.

LT would love to be able to help with that.

Nick: big question I think you need to ask them is how do they plan on testing

Lars Toomre: <http://rac.medill.northwestern.edu/2019-event-retail-robotics-ai-conference/>

Formulating some questions (we can continue this on email).

### Q: How are they planning on testing?

e.g. if they want to connect 2 things together, how will they test that?

These are technologists who work for retail companies who would work with vendors, so their concern is with the vendors.

This talks to the old problem of companies relying too much on vendors and not running their own validation and verification QA processes.

### Standards Case

Need standards for what they are saying to each other.

Nick: I think they should make sure that the "vendors" are trying to create a case with one ring to rule them all.

Use of ontologies to derive a common data model (if not already present).

If ARTS already has the common data model, that addresses that part of it.

## Layering: Protocol, Data Layer

Separately, what do they use underneath to get the messages back and forth (the protocol).

So the protocol and the data layer are distinct matters.

NS: Often with a DLT vendor, if you turn over your integration to them, they end up owning the integration mechanisms, e.g. would define a common DLT as a common denominator. The retailers need to elevate themselves to the level above that, so that the common thing is the standard. Avoid vendor lock-in. They are aware of this issue

Retails aware of the risks of vendor lock-in in Blockchain. This was the reason for ARTS.

NS proposes a testing environment that the retailers can set up and control.

BT: This is more than that, this is running their everyday business.

BT: See Boomi - a kind of oracle that identifies messages from an application and gets them into other applications.

Rencher, Robert J: Boomi is Dell's integration technology.

Bobbin Teegarden: Yes, Dell bought Boomi. Boomi was an elegent message exchanger based on message queues (sort of an EAI solution)

### Financial Equivalents

LT: Equivalent in finance is things like the FIX

Also ISO 20022 and so on.

Nick: I would also like to point them to the DIDO RA

<https://www.omg.org/hot-topics/distributed-immutable-data-object.htm>

## The 5-Case Step Process

LT: Think about a 5 case step process:

1. Identifiers
   1. e.g. identify the security, the trade, a box of a cereal.
2. Reference data
   1. properties of the thing e.g. weight, provenance;
   2. the unit of what I will transact in.
   3. Includes units of count.
3. Take the ref data and the identifier, and do projections of cashflows for the security (in finance) per ACTUS.
   1. Functions to get from ref data to projections.
   2. Includes things dependent on the environment.
   3. In finance, that might be GDP etc. (may not have an analog in Retail)
4. Analytics: calculation
   1. e.g. in finance the effective duration of a portfolio, concentrations (risk), compliance with stated strategies etc.
5. Reporting:
   1. Take all the analytics, all the cashflws etc. and report to someone, where we see as the current status, potential shortfalls or excesses etc.

e.g. in SBRM, we give computers a means to get into these reports electronically.

### Discussion

MB: Maybe L3 has equivalents in e.g. logistics, and L4 e.g. stock management.

KS: A lot of this is in the TS1 model, outside of the ARTS model.

ARTS works with GS1 who bring the information via their supply chain stds, into ARTS wher eit is moved around the retail enterprise.

Also B2B payments, that happen outside of what ARTS specifies. That is in GS1.

### Lars Presenting

FinRamp - engages in overseas contracts.

Brass Rat - LLC for domestic work

Other vehicles to come, for other jurisdictions.

(this is described in the slides)

*Nick: Karen, I have to go, but I will create a slide deck that I think will present all my thoughts. You are welcome to use all or none of it. I will be glad to go over the contents if you are interested, I have to leave the meeting right now.*

FinTology deals with the standardized definitions in finance.

Brass Rat Capital deals with among other things, the DLTs and Smart Contracts, as well as Software Agents.

Semantic data definitions - from FIBO, GLEIF Ontology (PR), others.

### The 5-Step Process (Lars Slides)

See the 5-step Process Chain for the 5 points described above.

Step 1 unique identifiers = GS1

Step 2 content = ARTS

Then you need to extract the semantic data e.g. from the LEI we extract the data about that thing from the Step 2 data model(s). Comes out of a database somewhere, from that identifier.

Expect something similar in the retail supply chain - that is also covered in GS1.

In finance, Step 3 is probabilistic cash flows. This is because some contracts are path dependent. Both in terms of where an instrument may move, and the economic environment e.g. if the interest rate is such that the bond is likely to be called, it is priced based on likely call. Similarly mortgage based securities are highly probabilistic (pre-payment speeds, default rates etc.)

Step 4 is analytics. Assume there is some analytics step in retail (in JIT? Oversupply / undersupply etc.)

In finance, where we look at Effective Duration (an analytic measure) and key risk measures (VaR, LaR, EaR) in portfolios. This is for the portfolio as a whole.

Step 5 is for reports and decision making. Summary of where the (complex) system is.

Includes JDs, KPIs that are used as information points where you can shift the levers to shift things in one or another direction. Need to create actionable management reports that management can respond to.

Then there is a feedback loop - make a change in Step 5 and this makes changes in steps 1 through 4. Reports updated in (5). Real time or near real time.

MB: this makes a great framework for understanding these matters generally, and specializing in retail.

### Outcomes

**Resolution:** Take this to email, use Lars's framework to frame the questions about things running across the supply chains on different DLTs.

May get them to come to Nashville to follow up.

We will also have the Data Coalition coming to Nashville.

KS will also the retail folks for specific scenarios.

To be picked up on next week's call.

### Trades Considerations

So far, much focus has been on security questions not so much on confirmation that a trade has gone through.

BT: Where does Blockchain fit in this framework?

LT: immature, not able to be used by finance for production systems. Throughput is an issue for most Blockchains.

Throughput is less of an issue in graph based ones like IOTA. Need to know more before we have confidence for this in finance.

Use of CORBA, distributed XML data objects, DDS (distributed IoT messaging standard) and so on.

Then have some degree of communication between different Smart Contracts and different DLT technologies. Able to trigger other SCs, other txns or other DLT systems. Receipt of e.g. a well-constructed XML data object.

### The 7-Layer ISO Model

Use the 7-layer model as a way of understanding how these pieces fit together.

Identify the standards we have around each of these layers.

### Conclusions

So we have the vertical v the horizontal: the 7 layers v the 5 steps in the above analysis.