X1 - Linked Pedigrees

# Summary of the innovation (max. 1000 characters)

**Linked Pedigrees** is an entirely new approach to tracking and tracing in the supply chain based on an integration of GS1 standards with Semantic technology. Aston has formalised the GS1 EPCIS standard in a series of formally rigorous ontologies (EEM, CBV) and provides a Java library. Together with a rigorous architecture, this enables actors along the supply chain to record events as "linked pedigrees" in individual separate triple stores which providing URL links to corresponding pedigrees upstream in the supply chain. This enables each actor to keep complete control of their data while enabling total tracking, tracing and transparency to appropriately authorised actors (e.g. regulators or retailers). The main benefit of this approach is opportunity for multiple software developers to provide light-weight but interoperable systems for data integrations across the supply chain. This is completely novel work.

# Key features / capabilities (5 bullets, 2 lines each max)

* Facilitates complete tracking and tracing across the supply chain while allowing individual control of data.
* Built around existing standards (EPCIS of GS1, RDF, OWL, Java) while entirely extensible as new data fields are added to EPCIS or new knowledge is required and can be added by extending the ontologies.
* Open source implementation available with MIT licence.
* Java library is enterprise ready, capable of integration with existing or new systems
* Generic architecture applicable to most supply chain domains, including agriculture, processed food, pharmaceuticals, and any manufactured product.

# Maturity level (TRL - Technology Readiness Level)

* **TRL 3 – experimental proof of concept**

# Availability

* Research paper
	+ Monika Solanki and Christopher Brewster. [OntoPedigree: A content ontology design pattern for traceability knowledge representation in supply chains](http://cbrewster.com/papers/Solanki_SWJ15.pdf). Semantic Web – Interoperability, Usability, Applicability. Semantic Web Journal. [bibtex](http://cbrewster.com/papers/Solanki_SWJ15.txt)
	+ Monika Solanki and Christopher Brewster. [Enhancing visibility in EPCIS governing Agri-food Supply Chains via Linked Pedigrees](http://cbrewster.com/papers/Solanki_IJSWIS15.pdf). International Journal on Semantic Web and Information Systems. Vol 10:3. [bibtex](http://cbrewster.com/papers/Solanki_IJSWIS15.txt)
* Open Source project
	+ <https://github.com/nimonika/LinkedEPCIS>
* Presentation
	+ <http://www.slideshare.net/nimonika/linked-data-driven-epcis-eventbased-traceability-across-supply-chain-business-processes>
	+ cf. Other presentations here: <http://www.slideshare.net/nimonika>

# Licensing

* Open Source MIT License for the software. Use of EPCIS is governed by GS1.

# FIspace partner(s) that own innovation & contact points

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