P2 - Business process collaboration enhanced with complex event driven capabilities

# Summary of the innovation

In today’s competitive and dynamic landscape, business managers are continuously forced to effectively react to any event that has the potential to affect the expected course of their business processes. To cope with this requirement, companies are increasingly adopting business process engines alongside with event processing engines, to manage their business process and get real-time alerts once a situation requiring a course of action occurs. However, these two engines deal with different business logic and programming models and, as result, integration between the two is far from being easy. Business process engines are usually synchronous and the process encompasses sequential steps or tasks to be performed. Event processing engines are by nature asynchronous. Events can happen in any order and an action is taken in a reactive mode.

The B2B component in FIspace, composed of a business collaboration module (BCM) and a (complex) event processing engine (EPM), offers a seamless integration between these two types of engines. The artefact-centric approach for business processes is reactive and asynchronous, and events are the ones responsible for the progress in the flow. Moreover, the programming model of the BCM supports the inclusion of events as a building block in the programming model making the integration easy. While the event logic is done within the EPM, the output events can be guards and milestones in the BCM programming model.

The B2B “packages” two types of engines while maintaining a clear separation between their two types of business logic, making it a unique potential product. As the two engines are generic, the B2B can be applicable to any domain.

# Key features / capabilities

* Generic approach for combining business processes and event-driven application, applicable to any domain – the engines are generic tools, as well as the method employed, making the approach applicable to any domain.
* Event driven business processes – the business process evolves in an asynchronous way, dictated by events.
* Joint Context lifecyle management – the lifecycle of “artifacts” and “events” are synchronized by Contexts (one or more common attributes)
* Separation of concerns between the event driven logic and business process logic – while this feature enables the implementation of sophisticated applications, the integration is still easy to do.
* Business process template – The business process logic initializes the entire process and dictates the flow. The event-driven logic “enriches” the process in places when complex event processing is required, without introducing additional complexity in the process, just by including derived events from the EPM into the BCM. In addition, the event-driven logic can be customized and extended and therefore, customize the business process for specific cases.

# Maturity level (TRL - Technology Readiness Level)

* TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)

# Availability

* Research paper
	+ F. Fournier and L. Limonad, “The BE2 model: When Business Events meet Business Entities”,

DAB14 Workshop, BPM 2014 International Workshops, Eindhoven, The Netherlands; 09/2014.

* + S. Barmpounakis, A. Kaloxylos, A. Groumas, L. Katsikas, V. Sarris, K. Dimtsa, F. Fournier, E. Antoniou, N. Alonistioti, and S. Wolfert, “Management & Control applications in Agriculture domain via a Future Internet Business-to-Business Platform”, Information Processing in Agriculture, Volume 2, Issue 1, May 2015, Pages 51–63. DOI:10.1016/j.inpa.2015.04.002DOI. open access at: http://www.sciencedirect.com/science/article/pii/S2214317315000153
* Deliverable (report)
	+ D200.2
	+ D200.4
	+ D200.6
	+ D200.8
* Deliverable (code/prototype)
	+ FIspace platform (open source)
* Open source project
	+ BCM (open source in Bitbucket project repositoty)
	+ EPM (open source in Bitbucket project repositoty)

# Licensing

* Public domain (research papers)
* Open source (Apache 2)

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

* IBM Research – Haifa; fabiana@il.ibm.com