



EU FP7 Project 257593



Artifact-Centric Service Interoperation

Outline of ACSI Project

- EU FP7 STREP ACSI 257593: www.acsi-project.eu
- Reduction in the effort and lead-time of designing, deploying, maintaining, and joining into environments that support service collaborations
- Partners: IBM Israel – Science and Technology Ltd. (Israel), Sapienza Università degli Studi di Roma (Italy), Free University of Bozen-Bolzano (Italy), Imperial College Of Science, Technology and Medicine (UK), Technische Universiteit Eindhoven (Netherlands), University of Tartu (Estonia), Indra Software Labs SLU (Spain), Colibra NV (Belgium)
- Duration: June 2010 – May 2013
- Consortium expertise areas: business process management, artifact-centric business operations, verification, data integration and ontologies, process mining, and services architectures
- Total cost: €4.699 M

Motivation

There is no effective, flexible, scalable, and principled approach today to enable the interoperation of services across enterprise boundaries in support of shared (business) goals. This is a major roadblock to preventing the automation of these kinds of collaboration, and more broadly, the design, deployment, and operation of innovative value nets.

The ACSI project tackles the challenges faced by most e-businesses today in simplifying and streamlining the costly process of blending multiple, separately managed e-services into a dynamic, organic whole.

The ACSI Goals

The ACSI project aims to achieve dramatic savings over conventional approaches to service interoperation as follows:

1. At least 40% reduction in the design and deployment of environments that support large numbers of service collaborations with similar goals
2. At least 20% reduction in the costs of on-boarding into, and maintaining, service collaborations
3. At least 30% reduction in on-going manual activity needed to support typical service collaborations
4. At least 90% of data transformation in service collaborations will be automated

Challenges and Research Directions

The ACSI interoperation hub framework, in conjunction with the underlying ACSI artifact paradigm, provides a rich structure around which many subsequent scientific and technology advances can be made.

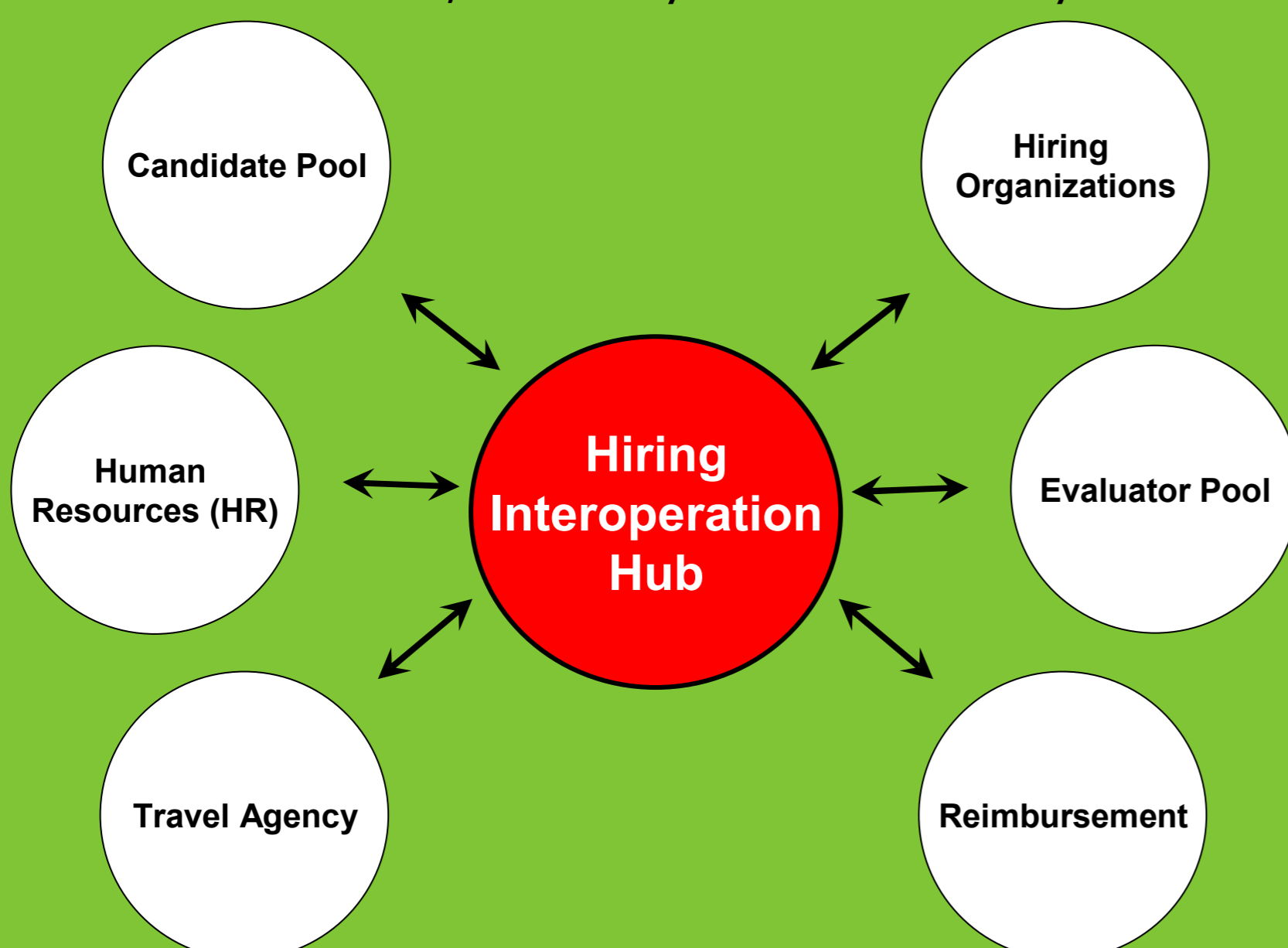
- The dynamic artifact approach will be extended in three key ways: development of declarative approaches to specify artifact lifecycles, development of a formal foundation for artifacts including a semantic layer, and the generalization of artifacts to support service collaborations involving multiple enterprises
- New verification and synthesis techniques will be developed to incorporate data along with process
- Process mining research will be extended in two substantial ways: a shift to on-line analysis and a shift to incorporate data more explicitly

A Brand New Approach

Artifact-Centric Service Interoperation (ACSI) is based on two fundamental constructs: the interoperation hub and dynamic artifacts.

An interoperation hub serves as a virtual rendezvous for multiple services that work together towards a common goal. Our research will develop a principled, easy-to-use framework for creating, deploying, maintaining, and joining into ACSI interoperation hubs in essentially any application domain. An ACSI interoperation hub will serve as the anchor for a collaborative IT environment that supports large numbers of service collaborations that operate independently, but focus on essentially common goals.

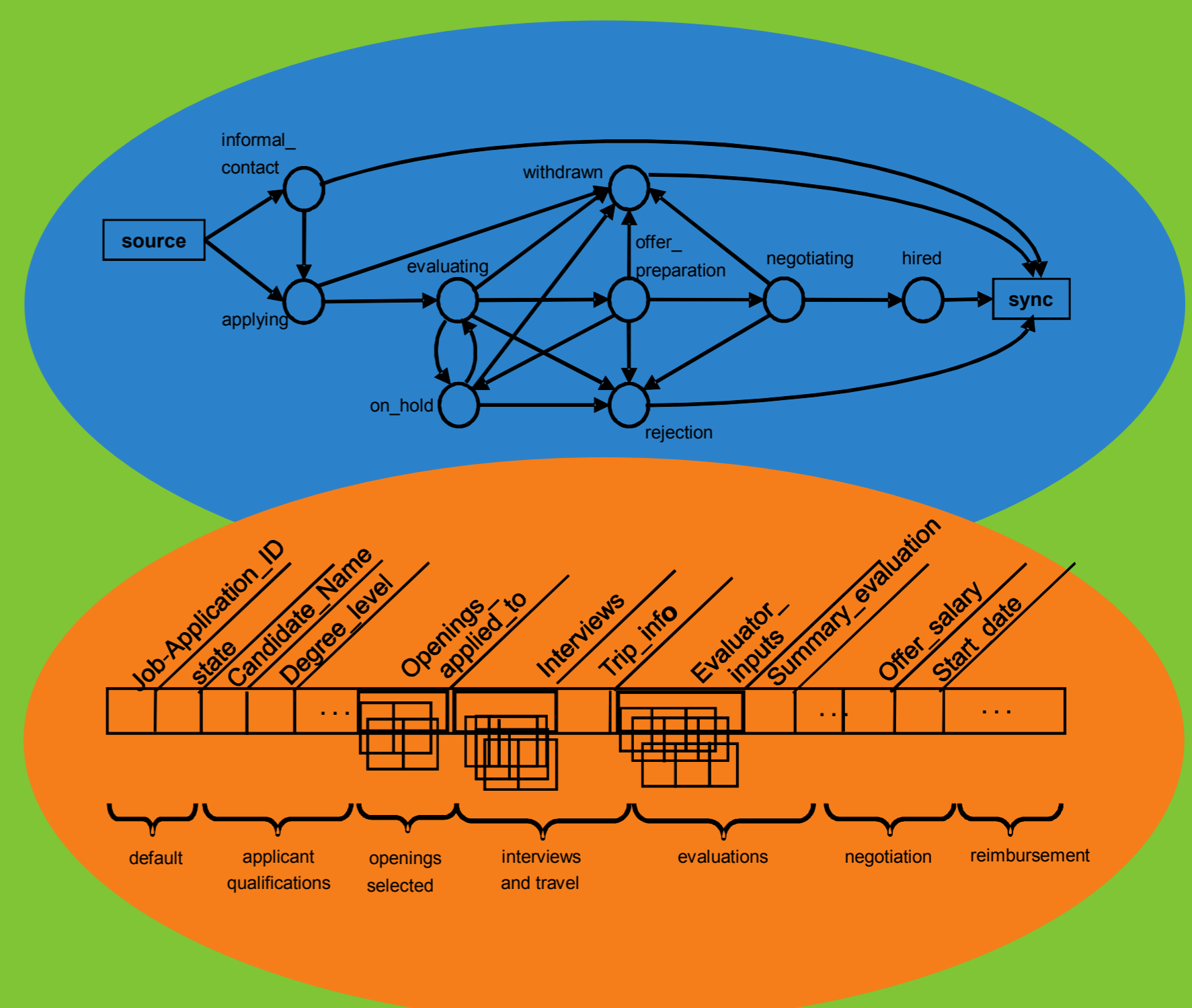
These hubs are primarily reactive, serving as a kind of structured whiteboard to which participating services can refer. The hubs can be updated with information relevant to the group, assist the services by carrying out selected tasks, or notify services of key events.



Example of interoperation hub that supports collaboration around hiring

The interoperation hubs used in ACSI will be structured around dynamic artifacts, also known as “business artifacts” or “business entities”. These provide an holistic marriage of data and processes, serving as the basic building block for modeling, specifying, and implementing services and business processes.

Artifacts can give an end-to-end view of how key conceptual business entities evolve as they move through the business operations, in many cases across two or more silos. As a result, artifacts can substantially simplify the management or “hand-off” of data and processing between services and organizations.



Example of Job application artifact, showing both the data schema and the lifecycle schema