As part of the further development of the USNB solution, the research engineer will specifically contribute to:

- Design and implementation of an automated solution to the synthesis of software mediators associated with the plugging of given social interaction services, while the current SocialBus implementation relies on the ad hoc, cumbersome and error-prone implementation of the required mediators by the developers.
- Customizing SocialBus to foster the participation of citizens in urban consultation processes. The work will subdivide into:
  - The study of workflows associated with participatory processes,
  - The elicitation of supporting middleware-relevant mechanisms,

References:

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- James Holston, Cristhian Parra, Valérie Issarny. Engineering Software Assemblies for Participatory Democracy: The Participatory Budgeting Use Case. International Conference on Software Engineering (ICSE), Software Engineering in Society (SEIS) Track, 2016. [https://hal.inria.fr/hal-01261012](https://hal.inria.fr/hal-01261012).
- Rafael Angarita, Nikolaos Georgantas, Cristhian Parra, James Holston, Valérie Issarny. Leveraging the Service Bus Paradigm for Computer-mediated Social Communication Interoperability. International Conference on Software Engineering (ICSE), Software Engineering in Society (SEIS) Track, 2017. [https://hal.inria.fr/hal-01485213](https://hal.inria.fr/hal-01485213).
- Rafael Angarita, Nikolaos Georgantas, Valérie Issarny. USNB: Enabling Universal Online Social Interactions. IEEE International Conference on Collaboration and Internet Computing, 2017. Best paper award. [https://hal.inria.fr/hal-01591757](https://hal.inria.fr/hal-01591757).
The design and implementation of such mechanisms for the integration within SocialBus. The work will go along with the adoption of adequate software engineering practices, and the production of documentation.

**Main activities**

The activities to be undertaken derive from the above expected contributions and include:

- Analyzing and getting to know the existing SocialBus prototype implementation.
- Designing and implementing a solution to the automated synthesis of mediators for the connection of online social network services to the bus.
- Customizing SocialBus for large-scale participatory processes.
- Experimenting with, and assessing, SocialBus in the context of participatory processes.
- Ensuring the quality of the developed software.
- Producing the documentation associated with the developed software.

**Skills**

Expertise, including experience or at least knowledge in the following topics:

- Service oriented architectures,
- Middleware architectures and systems,
- Implementation on Java EE and/or Node.js,
- Implementation of Web APIs,
- Code generation,
- Use of database management systems,
- Use of social networks.

**Benefits package**

- Restauration subventionnée
- Transports publics remboursés partiellement