Integrating ELIXIR Italy with ELIXIR Interoperability platform activities

Opportunities to join ELIXIR activities are vast and cover many different technical topics. ELIXIR Italy assigned to the University of Bologna the task of integrating the Italian node with the Interoperability platform. Thanks to the funding of the Implementation Study for new nodes integration in current activities, and the Staff Exchange, we were able to engage into the platform and establish productive partnerships with colleagues of the Spanish node.

Interoperability and Bioschemas

A workshop for the Italian ELIXIR community, held at the Bologna Biocomputing Group on January 31st and February 1st, steered an improvement of the quality and adoption of Bioschemas, a set of semantic annotations for tools, data and samples developed by the ELIXIR Interoperability platform.

Gathering a small number of different end-users and having them focus on applying Bioschemas specifications to their tools and data resulted in having early adopters, annotated resources, examples for future users and improvement suggestions.
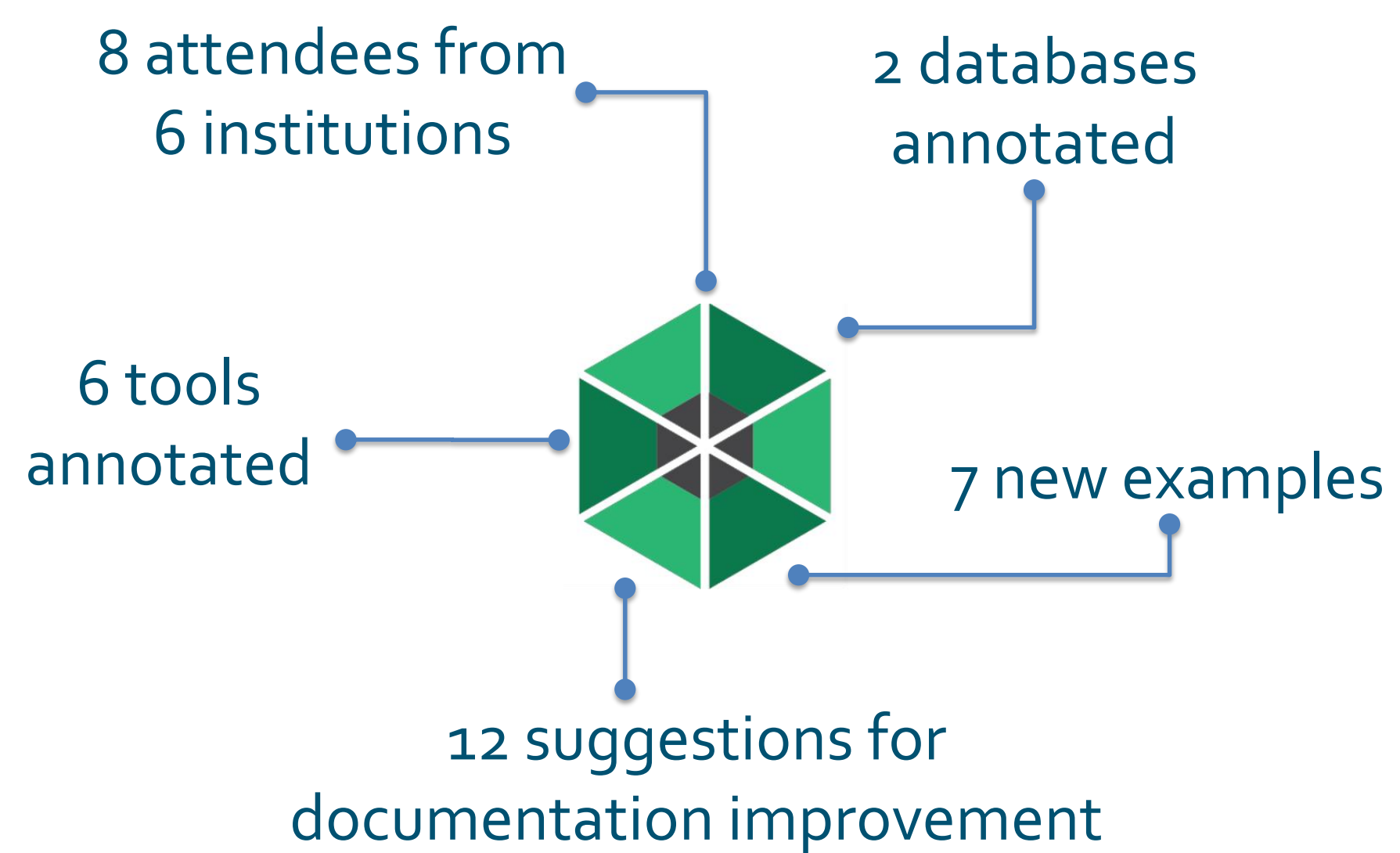
In a few hours, 6 tools and 2 databases ended up publishing Bioschemas descriptions in their respective Web pages. This approach could be applied to other open specifications, allowing a wider adoption and the integration of suggestions in a bottom-up fashion.

A discussion of the workshop results has been submitted for publication on F1000 Research. These best practices we described will also be helpful in the All Hands Bioschemas workshop.

The Italian workshop was funded via the Implementation study for the integration of new ELIXIR Nodes, along with other integration activities.

Workshop results

Bologna, 31/01-01/02 2018

8 attendees from 6 institutions

2 databases annotated

6 tools annotated

7 new examples

12 suggestions for documentation improvement

www.bioschemas.org

Tools and staff exchange

ELIXIR Italy partnered with ELIXIR Spain for a staff exchange program focused on the interoperability and benchmarking of tools. This was possible thanks to the high number of Italian tools registered on bio.tools and the OpenEBench benchmarking platform developed by the Spanish node.

Tools should be easily accessible by other automated services. This could be done via well defined API. As an example, eDGAR, a database of disease-gene associations, implements RD-Connect API used by the Rare Disease community. Such APIs should be easily accessible by crawlers.

We collaborated with the Barcelona Supercomputing Center (BSC) of ELIXIR Spain to add OpenAPI descriptions to some of our tools. This effort highlighted how defining APIs since day one will help in a better design, which technologies could be adapted to existing services and the technical requirements.

The staff exchange also helped the BSC in improving their OpenEBench tools benchmarking service. The tools from ELIXIR Italy have been used as a test case for identifying ways to better integrate information from the ELIXIR registry (bio.tools) and identify tools versions. A fresh perspective also helped in identifying new sources for citation and bibliometric data.

Given the Bologna Biocomputing Group experience with automated protein functional annotations, the exchange also resulted in a proposal for a using OpenEBench for continuous evaluation of such methods. The result has been adapted to the Critical Assessment of protein Function Annotation algorithms (CAFA) and it will be discussed at the ISMB conference 2018 (Chicago, July 7th).

OpenEBench

Support and requests

End users

Development

Feedbacks and new ideas
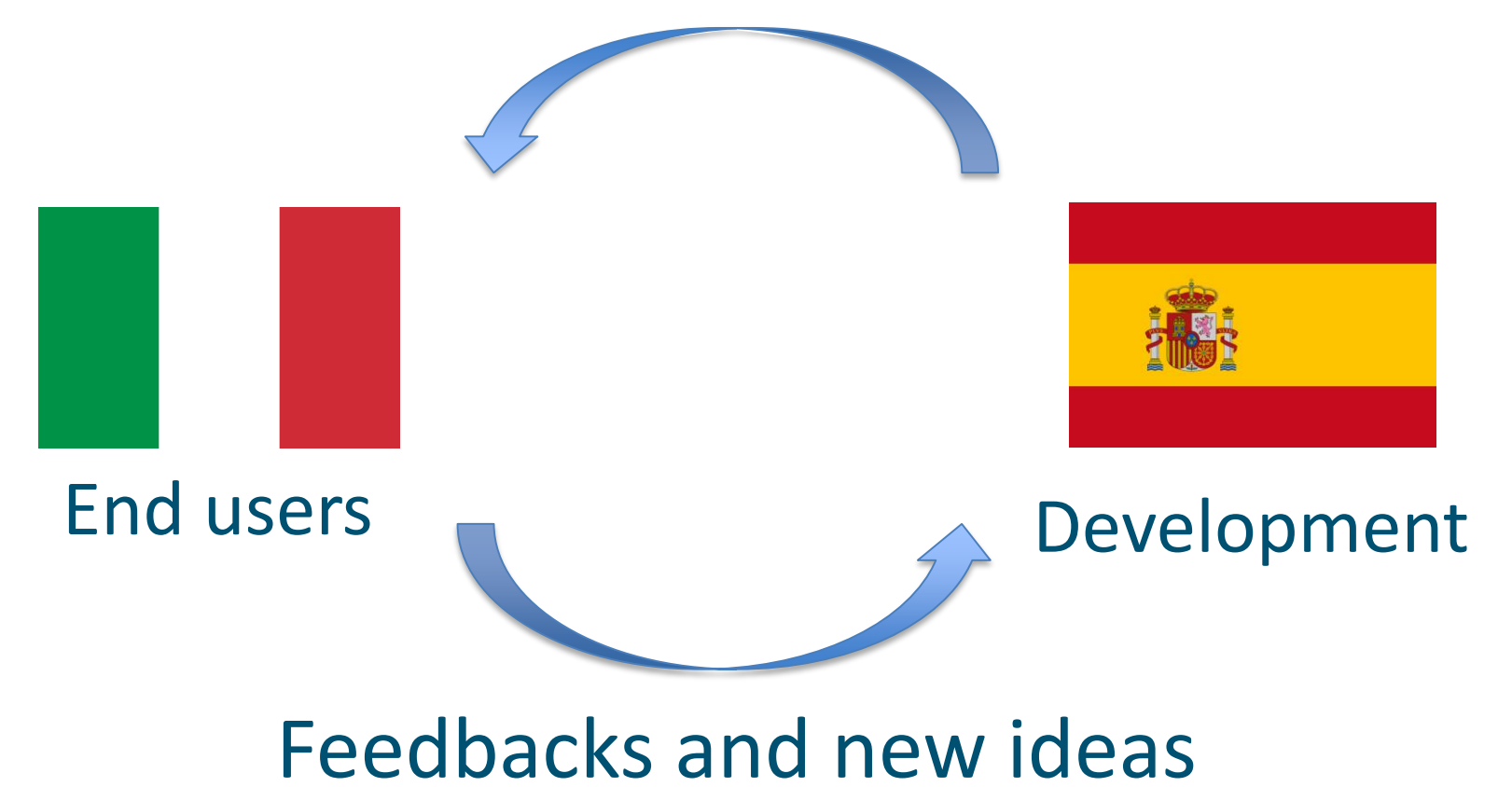
Proposal for CAFA-like experiments
- Stored datasets
- Standard evaluations
- Comparable results
- Continuous evaluation
- Easier publication of results

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